

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
 Edition : 16.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/11F2100R493
 Type number : 0 460 414 096
 Customer Part-No. :

Customer-specific information
 Customer : FIAT-AUTO

Engine : M711 KT 19.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return temp. °C
 with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 116

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value mm: 6.00...6.40
 AFB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 7.10...7.50
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 62.50...63.50
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ : 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 750
 Del. quantity cm³/
 1000S.: 44.00...45.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

11

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 6.00...10.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/ : 6.0
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2400
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 30.00...34.00
 KSB/AFB
 valve Volt: 12
 Timing valve Volt: 2
 Shutoff
 electromagnet Volt: 12

A01

Start:

Speed 1/min: 100
Del. quantity cm³/: 31.00...33.00
mind 1000S.: -
KSB/AFB
Valve Volt: 12
Shutoff electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: -8.00...10.00 #
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1500
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.10..0.30#
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 7.70...8.50
mm: (7.20...9.00)
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 6.00...6.40
mm: (5.50...6.90)
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.90...2.70
mm: (1.40...3.20)
KSB/AFB
valve Volt: 12

Shutoff electromagnet Volt: 12
8th speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 3.60...5.60 B
mm: (3.40...5.80)

KSB/AFB
valve Volt: -
Shutoff electromagnet Volt: 12
9th speed 1/min: 450
Charge press. hPa: 1000
TD travel mm: 2.90...3.10 A
mm: (2.00...4.00)

KSB/AFB
valve Volt: -
Shutoff electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.10...7.50
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12
2nd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 8.20...8.80
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12
3rd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.20...5.80
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff electromagnet Volt: 12
Overflow : 88.90...133.40
quantity cm³/10s: (75.90...158.40)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Overflow : 97.30...180.70	Shutoff
quantity cm ³ /10s: (82.30...195.70)	electromagnet Volt: 12
Delivery-quant. and breakaway char.:	Del. quantity cm ³ /: 61.00...66.00
18th speed 1/min: 750*	1000s.: (59.50...67.50)
1st speed 1/min: 750*	Charge press. hPa: -
Charge-air pressure-setting	KSB/AFB
point hPa: 400	valve Volt: 12
LDA-stroke mm: 7.4	Shutoff
KSB/AFB	electromagnet Volt: 12
valve Volt: 12	Del. quantity cm ³ /: 44.00...45.00
Shutoff	1000s.: (41.00...48.00)
electromagnet Volt: 12	Mech. shutoff:
Del. quantity cm ³ /: 63.50...64.50	Electr. shutoff:
1000s.: (60.00...68.00)	1st speed 1/min: 450
2nd speed 1/min: 2650	Del. quantity cm ³ /: 0.00...3.00
Charge press. hPa: 1000	1000s.: (0.00...3.00)
KSB/AFB	Shutoff
valve Volt: 12	electromagnet volt: -
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: -
Del. quantity cm ³ /: 0.00...3.00	Idle delivery:
1000s.: (0.00...3.00)	1st speed 1/min: 450
3rd speed 1/min: 2500	KSB/AFB
Charge press. hPa: 1000	valve Volt: 12
KSB/AFB	Shutoff
valve Volt: 12	electromagnet Volt: 12
Shutoff	Del. quantity cm ³ /: 6.00...10.00
electromagnet Volt: 12	1000s.: (3.00...13.00)
Del. quantity cm ³ /: 17.00...23.00	Dispersion cm ³ /: 6.0
1000s.: (14.00...26.00)	1000s.: (6.5)
5th speed 1/min: 2400	2nd speed 1/min: 500
Charge press. hPa: 1000	KSB/AFB
KSB/AFB	valve Volt: 12
valve Volt: 12	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm ³ /: 0.00...3.00
Del. quantity cm ³ /: 30.00...34.00	1000s.: (0.00...3.00)
1000s.: (26.00...38.00)	3rd speed 1/min: 470
9th speed 1/min: 2100	KSB/AFB
Charge press. hPa: 1000	valve Volt: 12
KSB/AFB	Shutoff
valve Volt: 12	electromagnet Volt: 12
Shutoff	Del. quantity cm ³ /: 0.00...6.00
electromagnet Volt: 12	1000s.: (0.00...7.00)
Del. quantity cm ³ /: 59.00...63.00	Load-dependent start of delivery:
1000s.: (57.00...65.00)	Inj.-qty.dif.measurement:
12th speed 1/min: 1750	1st speed 1/min: 1500
Charge press. hPa: 1000	Charge press. hPa: -
KSB/AFB	Inj.-qty. cm ³ / : -5.0...13.0 "
valve Volt: 12	difference 1000s.: -
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 62.50...63.50	
1000s.: (59.50...66.50)	
15th speed 1/min: 1500	
Charge press. hPa: 1000	

KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
2nd speed	1/min: 1500		
Charge press.	hPa: -		
Inj.-qty.	cm ³ /: MAX.		
difference	1000S.: 4.00...6.00		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
TD-travel dif.measurement:			
correttore anticipo iniezione (SV):			
1st speed	1/min: 1500		
Charge press.	hPa: -		
TD-travel	: -0.5...0.7 "		
difference	mm: -		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
2nd speed	1/min: 1500		
Charge press.	hPa: -		
TD-travel	: - 0.4...1.2 "		
difference	mm: -		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
Part-load del.at 3rd inj.-qty.			
terza fermo della portata			
stop (EGR set)			
scarico) (ARF)			
gaz d'échappement-ARF)			
Spacing	mm: 12.0		
1st speed	1/min: 1000		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
Del. quantity cm ³ /:	16.90...18.90		
1000S.:	(15.40...20.40)		
Automatic starting fuel delivery:			
1st speed	1/min: 250		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
Del. quantity cm ³ /:	70.00...100.00		
1000S.:	-		
2nd speed	1/min: 450		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
3rd speed	1/min: 100		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
Del. quantity cm ³ /:	55.00...85.00		
1000S.:	(50.00...90.00) K		
4th speed	1/min: 100		
KSB/AFB			
valve	Volt: 12		
Shutoff			
electromagnet	Volt: 12		
Del. quantity cm ³ /:	31.00...33.00		
1000S.:	(25.00...40.00) W		
Shutoff electromagnet:			
Cut-in			
min voltage	: 10.0		
Rated voltage	: 12.0		
Mounting and assembly dimensions:			
Designation			
K	mm: -		
KF	mm: K-0T		
MS	mm: 0.9		
MS1	mm: 1.18		
SVS max.	mm: 1.4		
LDA stroke	mm: 7.4		
Ajustement Potentiometer:			
Angle for			
pot.	°: 12 MM		
Supply voltage			
pot.	volt: 5.0		
Output volt			
pot.	volt: 2.0		
Remarks:			
	:		
Operate control lever after each			
manifold-pressure compensator pressure			
change.			
* Correction at adjusting nut			
A = KSB adjustment point			
B = KSB curve point			

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 08.03.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R419-3
 Type number : 0 460 426 204
 Customer Part-No. : 391 3348

Customer-specific information
 Customer : CDC

Engine : 6 BTA 590A

Power KW: 118
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.25
 mm: +0,02(0,06)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.60...2.00
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 84.00...85.00
 Shutoff electromagnet Volt: 12
 Dispersion cm³/ : 5.0
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 55.50...56.50
 Shutoff electromagnet Volt: 12
 Dispersion cm³/ : 5.0
 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000S.: 12.00...16.00
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/ : 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1325
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 75.00...81.00
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm³/: 100.00...160.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 230
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 66.00...67.00
1000S.: (62.50...70.50)
2nd speed 1/min: 1480
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)
5th speed 1/min: 1325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...81.00
1000S.: (72.00...84.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.50...88.50
1000S.: (84.00...90.00)
10th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 87.00...90.00
 1000S.: (85.00...92.00)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 85.00...86.00
 1000S.: (82.50...88.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 56.50...57.50
 1000S.: (53.00...61.00)

Mech. shutoff:
 Mech. Abstellung:

1st speed 1/min: 1250
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.00...16.00
 1000S.: (9.00...19.00)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 460
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 110.00...170.00
 1000S.: (110.00...170.00)

2nd speed 1/min: 240
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...80.00
 1000S.: (50.00...80.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 100.00...160.00
 1000S.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
 min voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-OT
MS1	mm: 1.3...1.5
SVS max.	mm: 2.3
LDA stroke	mm: 7.0
Ya	mm: 34.8...38.8
Yb	mm: 43.7...49.3

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 08.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R419-4
 Type number : 0 460 426 205
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTA 590A

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.25
 mm: +0.02(0.06)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

A09

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.60...2.00
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff electromagnet Volt: 12

Full-load det. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 85.00...86.00
 Shutoff electromagnet Volt: 12
 Dispersion cm³/: 5.0
 1000S.: (5.0)

Full-load det. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 56.50...57.50
 Shutoff electromagnet Volt: 12
 Dispersion cm³/: 5.0
 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000S.: 12.00...16.00
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1325
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 75.00...81.00

Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 100.00...160.00
 mind 1000S.: 100.0

Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12
Inspection-pump test specifications Test specifications in parentheses	Overflow quantity at overflow valve:
Timing-device characteristic:	
2nd speed 1/min: 1250 Charge press. hPa: 1000 TD travel mm: 2.30...3.10 mm: (2.00...3.40)	1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 quantity cm ³ /10s: (26.70...98.40)
Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 1.60...2.00 mm: (1.10...2.50)	2nd speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 quantity cm ³ /10s: (40.60...154.00)
Shutoff electromagnet Volt: 12 4th speed 1/min: 850 Charge press. hPa: 1000 TD travel mm: 0.80...1.60 mm: (0.50...1.90)	Delivery-quant. and breakaway char.:
Shutoff electromagnet Volt: 12 8th speed 1/min: 450 Charge press. hPa: - TD travel mm: 2.00...3.00 mm: (1.80...3.20)	1nd speed 1/min: 700* Charge-air pressure-setting point hPa: 230 LDA-stroke mm: 7.0 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 66.00...67.00 1000s.: (62.50...70.50)
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	2nd speed 1/min: 1480 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)
Supply-pump pressure characteristic:	3rd speed 1/min: 1450 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 15.00...45.00 1000s.: (15.00...45.00)
1st speed 1/min: 850 Charge press. hPa: 1000 Supply-pump pressure bar: 5.70...6.30 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1000 Charge press. hPa: 1000 Supply-pump pressure bar: 6.30...6.90 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Charge press. hPa: 1000 Supply-pump pressure bar: 7.40...8.00 Shutoff electromagnet Volt: 12 4th speed 1/min: 500 Charge press. hPa: 1000 Supply-pump pressure bar: 3.90...4.50	5th speed 1/min: 1325 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 75.00...81.00 1000s.: (72.00...84.00) 9th speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 85.50...88.50 1000s.: (84.00...90.00) 10th speed 1/min: 1055 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 87.00...90.00 1000s.: (85.00...92.00) 12th speed 1/min: 850

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...86.00
1000s.: (82.50...88.50)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.50...57.50
1000s.: (53.00...61.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000s.: (9.00...19.00)
Dispersion cm³/: 5.5
1000s.: (7.0)
2nd speed 1/min: 460
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 110.00...170.00
1000s.: (110.00...170.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000s.: (50.00...80.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.00...160.00
1000s.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-0T
MS1	mm: 1.3...1.5
SVS max.	mm: 2.3
LDA stroke	mm: 7.0
Ya	mm: 34.8...38.8
Yb	mm: 43.2...48.8

Remarks:

Operate control lever after each 3346
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 08.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R498
 Type number : 0 460 426 211
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTAA 5.9B
 Power KW: 118
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,06)
 Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.50...1.90
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/ 1000S.: 84.00...85.00
 Shutoff electromagnet Volt: 24
 Dispersion cm³/ 5.0 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/ 1000S.: 69.50...70.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/ 5.0 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/ 1000S.: 6.00...10.00
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/ 5.5 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
 Charge press hPa: 1000
 Del. quantity cm³/ 1000S.: 57.50...63.50
 Shutoff electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/: 100.00...160.00
 mind 1000S.: 100.0
 Shutoff electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
 Charge press. hPa: 1000
 TD travel mm: 2.30...3.10
 mm: (2.00...3.40)
 Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1000
 Charge press. hPa: 1000
 TD travel mm: 1.50...1.90
 mm: (1.00...2.40)

Shutoff electromagnet Volt: 24
 7.Rotacao 1/min: 850
 Charge press. hPa: 1000
 TD travel mm: 0.00...1.40
 mm: -
 Shutoff electromagnet Volt: 24
 8th speed 1/min: 450
 Charge press. hPa: -
 TD travel mm: 2.00...3.00
 mm: (1.80...3.40)

KSB/AFB valve Volt: 24
Shutoff electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.90...6.50
 Shutoff electromagnet Volt: 24
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.30...6.90
 Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.30...7.90
 Shutoff electromagnet Volt: 24
 4th speed 1/min: 500
 Charge press. hPa: 1000

Supply-pump pressure bar: 3.90...4.50
 Shutoff electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600*
 Charge-air pressure-setting point hPa: 450
 LDA-stroke mm: 6.5
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 76.00...77.00
 1000S.: (72.50...80.50)
 2nd speed 1/min: 1485
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1465
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 10.00...30.00
 1000S.: (10.00...30.00)
 5th speed 1/min: 1380
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 57.50...63.50
 1000S.: (54.50...66.50)
 9th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 82.00...85.00
 1000S.: (80.50...86.50)
 10th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24

Del. quantity cm³/: 83.50...86.50
 1000s.: (81.50...88.50)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 84.00...85.00
 1000s.: (81.50...87.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 69.50...70.50
 1000s.: (66.00...74.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1250
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 6.00...10.00
 1000s.: (3.00...13.00)
 Dispersion cm³/: 5.5
 1000s.: (7.0)
 2nd speed 1/min: 410
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 110.00...170.00
 1000s.: (110.00...170.00)
 2nd speed 1/min: 240
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 60.00...90.00
 1000s.: (60.00...90.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 100.00...160.00
 1000s.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
 min voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-OT
MS1	mm: 1.19-1.44
SVS max.	mm: 3.7
LDA stroke	mm: 6.2
Y _a	mm: 34.8...38.8
Y _b	mm: 43.6...49.2

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
charge.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 08.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R498-1
 Type number : 0 460 426 212
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTAA 5.9B
 Power KW: 96
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303
 Calibrating-oil return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00
 Inlet press., bar : 0.30...0.40
 Calibrating nozzle-holder assembly : 1 688 901 109
 Opening Pressure bar: 207.00...210.00
 Perforated-plate diameter mm: 0.5

Test inj. tubing : 1 680 750 017
 Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -
 Start of delivery block
 Piston stroke mm: 1,15
 mm: +0.02(0.06)
 Outlet : D
 Injection-pump setting values

+ Test specifications in parentheses

+ Timing-device travel

+ Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.50...1.90
 Shutoff electromagnet Volt: 24

+ Supply-pump pressure

+ Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff electromagnet Volt: 24

+ Full-load del. with charge press.:

+ Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000s.: 71.50...72.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/: 5.0
 1000s.: (5.0)

+ Full-load del. w/out charge press.:

+ Speed 1/min: 500
 Del. quantity cm³/
 1000s.: 59.50...60.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/: 5.0
 1000s.: (6.0)

+ Low-idle speed regulation

+ Speed 1/min: 350
 Del. quantity cm³/
 1000s.: 11.00...15.00
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000s.: (7.0)

+ Full-load speed regulation

+ Speed 1/min: 1400
 Charge press hPa: 1000
 Del. quantity cm³/
 1000s.: 42.00...48.00
 Shutoff electromagnet Volt: 24

+ Start:

Speed 1/min: 100
 Del. quantity cm³: 100.00...160.00
 mind 1000S.: 100.0
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.10...2.90
 mm: (1.80...3.20)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.50...1.90
 mm: (1.00...2.40)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 850
 Charge press hPa: 1000
 TD travel mm: 0.50...1.30
 mm: (0.20...1.60)
 Shutoff
 electromagnet Volt: 24
 8th speed 1/min: 450
 Charge press. hPa: -
 TD travel mm: 2.00...3.00
 mm: (1.80...3.20)

KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.70...6.30
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 6.30...6.90
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.20...7.80
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 500
 Charge press. hPa: 1000

Supply-pump
 pressure bar: 3.90...4.50
 Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting
 point hPa: 450
 LDA-stroke mm: 4.0
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 68.00...69.00
 1000S.: (64.50...72.50)
 2nd speed 1/min: 1490
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1445
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 15.00...45.00
 1000S.: (15.00...45.00)
 5th speed 1/min: 1400
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 42.00...48.00
 1000S.: (39.00...51.00)
 9th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 73.00...77.00
 1000S.: (72.00...78.00)
 10th speed 1/min: 1100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24

Del. quantity cm³/: 72.50...75.50
 1000s.: (70.50...77.50)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 71.50...72.50
 1000s.: (69.00...75.00)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 59.50...60.50
 1000s.: (56.00...64.00)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1250
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 11.00...15.00
 1000s.: (8.00...18.00)
 Dispersion cm³/: 5.5
 1000s.: (7.0)
 2nd speed 1/min: 400
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 110.00...170.00
 1000s.: (110.00...170.00)
 2nd speed 1/min: 200
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 55.00...85.00
 1000s.: (55.00...85.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 100.00...160.00
 1000s.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
 min voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-OT
MS1	mm: 1.3...1.5
SVS max.	mm: 3.7
LDA stroke	mm: 4.0
Ya	mm: 34.8...38.8
Yb	mm: 44.9...50.1

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 08.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R498-2
 Type number : 0 460 426 213
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTA 5.9B

Power KW: 106
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.20
 mm: +0.02(0.06)
 Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.90...2.30
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 82.50...83.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/ : 5.0
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 67.00...68.00
 Shutoff electromagnet Volt: 24
 Dispersion cm³/ : 5.0
 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 11.00...15.00
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/ : 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1350
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 55.00...61.00
 Shutoff electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³: 100.00...160.00
 mind 1000S.: 100.0
 Shutoff electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.40...3.20
 mm: (2.10...3.50)
 Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.90...2.30
 mm: (1.40...2.80)

Shutoff electromagnet Volt: 24
 4th speed 1/min: 850
 Charge press hPa: 1000
 TD travel mm: 0.60...1.40
 mm: (0.30...1.70)

Shutoff electromagnet Volt: 24
 8th speed 1/min: 450
 Charge press. hPa: -
 TD travel mm: 2.00...3.00
 mm: (1.80...3.20)

KSB/AFB valve Volt: 24
 Shutoff electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.70...6.30
 Shutoff electromagnet Volt: 24
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.30...6.90
 Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.20...7.80
 Shutoff electromagnet Volt: 24
 4th speed 1/min: 500
 Charge press. hPa: 1000

Supply-pump pressure bar: 3.90...4.50
 Shutoff electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff electromagnet Volt: 24
 Overflow quantity cm³/10s: 41.70...83.40
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Overflow quantity cm³/10s: 55.60...139.00

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting point hPa: 450
 LDA-stroke mm: 4.0
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 73.00...74.00
 1000S.: (69.50...77.50)
 2nd speed 1/min: 1460
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1425
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 15.00...45.00
 1000S.: (15.00...45.00)
 5th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³: 55.00...61.00
 1000S.: (52.00...64.00)
 9th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 77.00...81.00
 1000S.: (76.00...82.00)
 10th speed 1/min: 1100
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24

Del. quantity cm³/: 80.00...83.00
 1000s.: (78.00...85.00)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 82.50...83.50
 1000s.: (80.00...86.00)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 67.00...68.00
 1000s.: (63.00...71.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1250
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 11.00...15.00
 1000s.: (8.00...18.00)
 Dispersion cm³/: 5.5
 1000s.: (7.0)
 2nd speed 1/min: 400
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 85.00...145.00
 1000s.: -
 2nd speed 1/min: 200
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 55.00...85.00
 1000s.: (55.00...85.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 70.00...130.00

Shutoff electromagnet:

Cut-in
 min voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-OT
MS1	mm: 1.3...1.5
SVS max.	mm: 3.7
LDA stroke	mm: 4.0
Ya	mm: 34.8...38.8
Yb	mm: 44.9...50.1

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 03.03.93
 replaces : 03.12.91
 Calibrating oil : ISO-4113
 Injection pump : VE4/8F2300R317-2
 Type number : 0 460 484 030
 Customer Part-No. :

Customer-specific information
 Customer : RNUR

Engine : F8Q - 706

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder assembly : 1 688 901 022

Opening Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 4.10...4.50
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Setting value bar: 4.50...5.10
 Shutoff electromagnet Volt: 12
 Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/ 1000S.: 31.00...32.00
 Shutoff electromagnet Volt: 12
 Dispersion cm³/ 1000S.: 2.5
 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
 Del. quantity cm³/ 1000S.: 6.50...10.50
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/ 1000S.: 2.5
 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
 Del. quantity cm³/ 1000S.: 1.00...5.00
 Shutoff electromagnet Volt: 12
 Full-load speed regulation

Speed 1/min: 2450
 Del. quantity cm³/ 1000S.: 22.00...28.00
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ 1000S.: 40.00...70.00
 mind 1000S.: 40.00
 Shutoff electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/ difference 1000S.: - 7.70...9.70 #
 Shutoff electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250

Supply pump
 pressure difference bar: - 0.1...0.30 #
 Shutoff electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed	1/min: 2000
TD travel	mm: 7.40...8.20
	mm: (7.10...8.50)
Shutoff electromagnet	Volt: 12
3rd speed	1/min: 1250
TD travel	mm: 4.10...4.50
	mm: (3.60...5.00)
Shutoff electromagnet	Volt: 12
4th speed	1/min: 750
TD travel	mm: 1.70...2.50
	mm: (1.40...2.80)
Shutoff electromagnet	Volt: 12
8th speed	1/min: 500
TD travel	mm: 1.90...4.30 B
	mm: (1.90...4.30)
KSB/AFB valve	Volt: 12
Shutoff electromagnet	Volt: 12
9th speed	1/min: 310
TD travel	mm: 0.60...3.00 A
	mm: (0.60...3.00)
KSB/AFB valve	Volt: 12
Shutoff electromagnet	Volt: 12
Supply-pump pressure characteristic:	
1st speed	1/min: 750
Supply-pump pressure	bar: 3.10...3.70
Shutoff electromagnet	Volt: 12
2nd speed	1/min: 1250
Supply-pump pressure	bar: 4.50...5.10
Shutoff electromagnet	Volt: 12
3rd speed	1/min: 2000
Supply-pump pressure	bar: 6.40...7.00
Shutoff electromagnet	Volt: 12
Overflow quantity at overflow valve:	
1st speed	1/min: 750
Shutoff electromagnet	Volt: 12
Overflow quantity	cm ³ /10s: (26.70...98.40)
2nd speed	1/min: 2250
Shutoff electromagnet	Volt: 12
Overflow quantity	cm ³ /10s: (40.60...154.00)
Delivery-quant. and breakaway char.:	
2nd speed	1/min: 2950
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 0.00...5.00
	1000s.: (0.00...5.00)
3rd speed	1/min: 2650
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 7.00...15.00
	1000s.: (6.00...16.00)
5th speed	1/min: 2450
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 22.00...28.00
	1000s.: (21.00...29.00)
9th speed	1/min: 2250
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 31.50...33.50
	1000s.: (30.20...34.80)
10th speed	1/min: 2000
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 30.30...32.30
	1000s.: (29.00...33.60)
11th speed	1/min: 1625
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 29.70...32.70
	1000s.: (28.90...33.50)
12th speed	1/min: 1250
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 31.00...32.00
	1000s.: (29.20...33.80)
20th speed	1/min: 750
Shutoff electromagnet	Volt: 12
Del. quantity	cm ³ /: 30.10...33.10
	1000s.: (29.30...33.90)
Mech. shutoff:	
Electr. shutoff:	

1st speed 1/min: 410	1st speed 1/min: 1250
Del. quantity cm ³ /: 0.00...3.00 1000S.: (0.00...3.00)	Supply pump-pressure difference bar: - 0.2...0.6
Shutoff electromagnet volt: -	Shutoff electromagnet Volt: 12
Damper set qty.: -	Automatic starting fuel delivery:
LFG-setting: solidale con carcassa: Idle delivery:	1st speed 1/min: 210
1st speed 1/min: 410	Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: 12	Del. quantity cm ³ /: 45.00...75.00 1000S.: (45.00...75.00)
Del. quantity cm ³ /: 6.50...10.50 1000S.: (4.50...12.50)	2nd speed 1/min: 310
High Idle:	Shutoff electromagnet Volt: 12
1st speed 1/min: 500	Del. quantity cm ³ /: 15.00...45.00 1000S.: (15.00...45.00)
Shutoff electromagnet Volt: 12	4th speed 1/min: 100
Del. quantity cm ³ /: 7.00...11.00 1000S.: (5.00...13.00)	Shutoff electromagnet Volt: 12
Residual:	Del. quantity cm ³ /: 40.00...70.00 1000S.: (40.00...70.00)
1.Rotacao 1/min: 500	Shutoff electromagnet:
Shutoff electromagnet Volt: 12	Cut-in min voltage : 10.0
Del. quantity cm ³ /: 1.00...5.00 1000S.: (1.00...5.00)	Rated voltage : 12.0
Load-dependent start of delivery: Inj.-qty.dif.measurement:	Mounting and assembly dimensions:
1st speed 1/min: 1250	Designation
Inj.-qty. cm ³ / : - 9.0..13.0 "	K mm: 3.2...3.4
difference 1000S.: -	KF mm: 5.3...5.7
Shutoff electromagnet Volt: 12	MS mm: 1.1...1.5
2nd speed 1/min: 1250	SVS max. mm: 1.8
Inj.-qty. cm ³ /: + 2.0..8.0 "	Ya mm: 32.6...36.6
difference 1000S.: -	Yb mm: 65.7...79.3
Shutoff electromagnet Volt: 12	Remarks: A = KSB adjustment point B = KSB curve point
TD-travel dif.measurement: correttore anticipo iniezione (SV):	
1st speed 1/min: 1250	
TD-travel : -0.30..0.50 "	
difference mm: -	
Shutoff electromagnet Volt: 12	
2nd speed 1/min: 1250	
TD-travel : - 0.3...0.7 "	
SP press.-dif.measurement: pompa di mandata (FP):	

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 15.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/8F2300R430
 Type number : 0 460 484 046
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 1.9L A3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.00...5.00
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 4.90...5.70
 Shutoff
 electromagnet Volt: 12

Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/
 1000S.: 35.5...36.5
 Shutoff
 electromagnet Volt: 12.0
 Dispersion cm³/: 2.0
 1000S.: (3.0)

Low-idle speed regulation
 Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 7.00...9.00
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 2.0
 1000S.: (3.0)

Residual-Delivery Setting
 Speed 1/min: 550
 Del. quantity cm³/
 1000S.: 5.50...6.50
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation
 Speed 1/min: 2600
 Del. quantity cm³/
 1000S.: 10.00...14.00
 Shutoff
 electromagnet Volt: 12

Start:
 Speed 1/min: 100
 Del. quantity cm³/: 35.00...61.00
 mind 1000S.: 35.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 Speed 1/min: 1250
 Charge press hPa: 12
 Inj.-qty. cm³/
 difference 1000S.: - 4.50...10.5 *
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)

1.Speed 1/min: 1250
 Supply pump pressure difference bar: -0.10...0.30*
 Shutoff electromagnet Volt: 12
 Inspection-pump test specifications Test specifications in parentheses
 Timing-device characteristic:
 2nd speed 1/min: 2000
 TD travel mm: 7.30...9.30
 mm: -
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 1250
 TD travel mm: 3.00...5.00
 mm: -
 Shutoff electromagnet Volt: 12
 4th speed 1/min: 750
 TD travel mm: 0.30...2.30
 mm: -
 Shutoff electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 750
 Supply-pump pressure bar: 3.50...4.30
 Shutoff electromagnet Volt: 12
 2nd speed 1/min: 1250
 Supply-pump pressure bar: 4.90...5.70
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 2200
 Supply-pump pressure bar: 7.60...8.40
 Shutoff electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 400
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 quantity cm³/10s: (27.80...97.30)
 2nd speed 1/min: 2200
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...152.90
 quantity cm³/10s: (41.70...166.80)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 2800
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 0.00...3.00
 5th speed 1/min: 2600
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 10.00...14.00
 8th speed 1/min: 2500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 18.00...28.00
 9th speed 1/min: 2200
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 31.50...33.50
 12th speed 1/min: 1250
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 35.50...36.50
 15th speed 1/min: 750
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 30.50...33.50
 20th speed 1/min: 400
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 31.50...36.50
 Mech. shutoff:
 Electr. shutoff:
 1st speed 1/min: 450
 Del. quantity cm³/1000s: 0.00...3.00
 Damper set qty.:
 LFG-setting:
 solidale con carcassa:
 Idle delivery:
 1st speed 1/min: 450
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000s: 7.00...9.00
 1000s.: (4.00...12.00)
 High Idle:

1st speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...6.50
1000S.: (4.00...8.00)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...8.00
1000S.: (4.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : MAX ...3.00 #
difference 1000S.: -
Shutoff
electromagnet Volt: 12.

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.3...2.30 #
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.7...1.50 #
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...69.00
1000S.: (35.00...69.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...38.00
1000S.: (18.00...38.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...61.00
1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.1...5.5
MS	mm: 1.2...1.4
SVS max.	mm: -

Remarks:

:
Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 03.03.93
 replaces : 13.04.92
 Calibrating oil : ISO-4113
 Injection pump : VE4/8F2300R425-1
 Type number : 0 460 484 054
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD9AL Peug. D70

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder assembly : 1 688 901 022

Opening Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.50...3.90
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Setting value bar: 5.70...6.30
 Shutoff electromagnet Volt: 12
 Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/ 1000S.: 29.70...30.70
 Shutoff electromagnet Volt: 12.0
 Dispersion cm³/ 1000S.: (3.0)
 Low-idle speed regulation
 Speed 1/min: 375
 Del. quantity cm³/ 1000S.: 9.50...11.50
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/ 1000S.: (3.0)
 Residual-Delivery Setting
 Speed 1/min: 500
 Del. quantity cm³/ 1000S.: 2.50...3.50
 Shutoff electromagnet Volt: 12
 Full-load speed regulation
 Speed 1/min: 2650
 Del. quantity cm³/ 1000S.: 9.00...13.00
 Shutoff electromagnet Volt: 12
 Start:
 Speed 1/min: 100
 Del. quantity cm³/ mind 1000S.: 42.00...68.00
 Shutoff electromagnet Volt: 12
 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 Speed 1/min: 1250
 Inj.-qty. cm³/ difference 1000S.: - 5.0...7.0 #
 Shutoff electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250

Supply pump pressure difference	bar: - 0.1...0.3 #	2nd speed 1/min: 2900
Shutoff electromagnet Volt:	12	Shutoff electromagnet Volt: 12
Inspection-pump test specifications Test specifications in parentheses		Del. quantity cm ³ /: 0.00...6.00 1000s.: (0.00...6.00)
Timing-device characteristic:		5th speed 1/min: 2650
2nd speed 1/min: 2000		Shutoff electromagnet Volt: 12
TD travel mm: 6.70...7.50		Del. quantity cm ³ /: 9.00...13.00 1000s.: (7.00...15.00)
	mm: (6.40...7.80)	8th speed 1/min: 2500
Shutoff electromagnet Volt: 12		Shutoff electromagnet Volt: 12
3rd speed 1/min: 1250		Del. quantity cm ³ /: 19.50...25.50 1000s.: (17.50...27.50)
TD travel mm: 3.50...3.90		9th speed 1/min: 2200
	mm: (3.00...4.40)	Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: 12		Del. quantity cm ³ /: 32.00...34.00 1000s.: (30.80...35.20)
4th speed 1/min: 800		12th speed 1/min: 1250
TD travel mm: 1.20...2.00		Shutoff electromagnet Volt: 12
	mm: (0.90...2.30)	Del. quantity cm ³ /: 29.70...30.70 1000s.: (28.00...32.40)
Shutoff electromagnet Volt: 12		20th speed 1/min: 500
Supply-pump pressure characteristic:		Shutoff electromagnet Volt: 12
1st speed 1/min: 500		Del. quantity cm ³ /: 29.80...32.80 1000s.: (28.30...34.30)
Supply-pump pressure bar: 3.30...3.90		Mech. shutoff:
Shutoff electromagnet Volt: 12		Mech. Abstellung:
2nd speed 1/min: 1250		1st speed 1/min: 2200
Supply-pump pressure bar: 5.70...6.30		Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)
Shutoff electromagnet Volt: 12		Shutoff electromagnet volt: 12
3rd speed 1/min: 2200		Electr. shutoff:
Supply-pump pressure bar: 8.20...8.80		1st speed 1/min: 375
Shutoff electromagnet Volt: 12		Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)
Overflow quantity at overflow valve:		Shutoff electromagnet volt: -
1st speed 1/min: 500		Damper set qty.:
Shutoff electromagnet Volt: 12		LFG-setting:
Overflow : 41.70...83.40		solidale con carcassa:
quantity cm ³ /10s: (27.80...97.30)		Idle delivery:
2nd speed 1/min: 2200		1st speed 1/min: 375
Shutoff electromagnet Volt: 12		Shutoff electromagnet Volt: 12
Overflow : 55.60...132.90		Del. quantity cm ³ /: 9.50...11.50 1000s.: (6.50...14.50)
quantity cm ³ /10s: (41.70...152.90)		
Delivery-quant. and breakaway char.:		

High Idle:

1st speed 1/min: 475
Shutoff electromagnet Volt: 12
Del. quantity cm³: 8.50...10.50
1000s.: (5.50...13.50)

Residual:

1. Rotacao 1/min: 500
Shutoff electromagnet Volt: 12
Del. quantity cm³: 2.50...3.50
1000s.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³: - 3.5..13.5 "
difference 1000s.: -
Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³: MAX.
difference 1000s.: 2.0...8.0 '
Shutoff electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -0.90..1.10 "
difference mm: --
Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : -2.00..3.00 '
difference mm: -
Shutoff electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-pressure : -1.20..1.80 '
difference bar: -
Shutoff electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 225
Shutoff electromagnet Volt: 12
Del. quantity cm³: 37.00...71.00
1000s.: (37.00...71.00)

2nd speed 1/min: 350

Shutoff electromagnet Volt: 12
Del. quantity cm³: 20.00...40.00
1000s.: (20.00...40.00)

4th speed 1/min: 100
Shutoff electromagnet Volt: 12
Del. quantity cm³: 42.00...68.00
1000s.: (42.00...68.00)

Shutoff electromagnet:

Cut-in min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.2...1.6
SVS max.	mm: 3-1
Ya	mm: 18.8...22.8
Yb	mm: 82.0...96.0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 08.03.93
 replaces : =
 Calibrating oil : ISO-4113
 Injection pump : VE4/8F2300R458-2
 Type number : 0 460 484 059
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : FQ8-706

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.20...3.60
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 4.40...5.00
 Shutoff
 electromagnet Volt: 12
 Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/
 1000S.: 31.60...32.60
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)
 Low-idle speed regulation
 Speed 1/min: 410
 Del. quantity cm³/
 1000S.: 7.50...11.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.5
 1000S.: (2.5)
 Residual-Delivery Setting
 Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 2.50...3.50
 Shutoff
 electromagnet Volt: 12
 Full-load speed regulation
 Speed 1/min: 2450
 Del. quantity cm³/
 1000S.: 25.5...31.50
 Shutoff
 electromagnet Volt: 12
 Start:
 Speed 1/min: 100
 Del. quantity cm³/: 40.00...70.00
 mind 1000S.: 40.00
 Shutoff
 electromagnet Volt: 12
 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 Speed 1/min: 1250
 Inj.-qty. cm³/
 difference 1000S.: - 10.5...12.5 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1. Speed 1/min: 1250

Supply pump pressure difference	bar: - 0.10...0.30#	Shutoff electromagnet Volt: 12	1st speed 1/min: 750
Shutoff electromagnet Volt: 12		Overflow quantity cm ³ /10s: (26.70...98.40)	2nd speed 1/min: 2250
Inspection-pump test specifications Test specifications in parentheses		Shutoff electromagnet Volt: 12	Shutoff
Timing-device characteristic:		Overflow quantity cm ³ /10s: (40.60...154.00)	1st speed 1/min: 2950
1st speed 1/min: 750		Delivery-quant. and breakaway char.:	2nd speed 1/min: 2650
TD travel mm: 1.10...1.90		1nd speed 1/min: 2950	Shutoff
mm: (0.80...2.20)		electromagnet Volt: 12	Del. quantity cm ³ /: 0.00...5.00
electromagnet Volt: 12		1000S.: -	2nd speed 1/min: 2650
2nd speed 1/min: 1250		Shutoff	Shutoff
TD travel mm: 3.20...3.60		electromagnet Volt: 12	Del. quantity cm ³ /: 10.50...18.50
mm: (2.70...4.10)		1000S.: (9.50...19.50)	3rd speed 1/min: 2450
Shutoff electromagnet Volt: 12		Shutoff	Shutoff
3rd speed 1/min: 2000		electromagnet Volt: 12	Del. quantity cm ³ /: 25.50...31.50
TD travel mm: 5.80...6.60		1000S.: (24.50...32.50)	4th speed 1/min: 2250
mm: (5.50...6.90)		Shutoff	Shutoff
Shutoff electromagnet Volt: 12		electromagnet Volt: 12	Del. quantity cm ³ /: 33.00...35.00
4th speed 1/min: 310		1000S.: (31.70...36.30)	5th speed 1/min: 2000
TD travel mm: 1.00...3.40 A		Shutoff	Shutoff
mm: -		electromagnet Volt: 12	Del. quantity cm ³ /: 32.50...34.50
KSB/AFB valve	Volt: 12	1000S.: (31.20...35.80)	6th speed 1/min: 1625
Shutoff electromagnet Volt: 12		Shutoff	Shutoff
5th speed 1/min: 500		electromagnet Volt: 12	Del. quantity cm ³ /: 30.10...33.10
TD travel mm: 2.20...4.60 B		1000S.: (29.30...33.90)	7th speed 1/min: 1250
mm: -		Shutoff	Shutoff
KSB/AFB valve	Volt: 12	electromagnet Volt: 12	Del. quantity cm ³ /: 31.60...32.60
Shutoff electromagnet Volt: 12		1000S.: (29.80...34.40)	8th speed 1/min: 750
Supply-pump pressure characteristic:		Shutoff	Shutoff
1st speed 1/min: 750		electromagnet Volt: 12	Del. quantity cm ³ /: 30.20...33.20
Supply-pump pressure bar: 3.10...3.70		1000S.: (29.40...34.00)	Mech. shutoff:
Shutoff electromagnet Volt: 12			Electr. shutoff:
2nd speed 1/min: 1250			1st speed 1/min: 410
Supply-pump pressure bar: 4.40...5.00			
Shutoff electromagnet Volt: 12			
3rd speed 1/min: 2200			
Supply-pump pressure bar: 6.30...6.90			
Shutoff electromagnet Volt: 12			
Overflow quantity at overflow valve:			

Del. quantity cm ³ /: 0.00...3.00 1000S.: (MAX: 5.0)	Shutoff electromagnet volt: -	Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 40.00...70.00 1000S.: -
Damper set qty.: -	2nd speed 1/min: 210	Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 15.00...45.00 1000S.: -
LFG-setting: solidale con carcassa: Idle delivery:	Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 40.00...70.00 1000S.: -	4th speed 1/min: 100
1st speed 1/min: 410 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 7.50...11.50 1000S.: (5.50...13.50)	Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 40.00...70.00 1000S.: -	Shutoff electromagnet:
High Idle:	Cut-in min voltage : 10.0 Rated voltage : 12.0	Mounting and assembly dimensions:
1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 7.00...11.00 1000S.: (5.00...13.00)	Designation K mm: 3.2...3.4 KF mm: 5.5 MS mm: 1.2...1.4 SVS max. mm: 1.5 ALDA stroke mm: MIKROSCHE. FH mm: 10.2 MM Ya mm: 25.3...29.3 Yb mm: 62.6...74.4	Residual:
Residual:		1st speed 1/min: 1250 Inj.-qty. cm ³ / : -13.2...17.2" difference 1000S.: -
1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 2.50...3.50 1000S.: (1.00...5.00)		Inj.-qty.dif.measurement: A = KSB adjustment point B = KSB curve point
Load-dependent start of delivery: Inj.-qty.dif.measurement:		
1st speed 1/min: 1250 Inj.-qty. cm ³ / : -13.2...17.2" difference 1000S.: -		
Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Inj.-qty. cm ³ /: MAX. difference 1000S.: 2.00...8.00		
TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : 0.40...0.60 " difference mm: -		
Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 TD-travel : 0.30...0.70 ' difference mm: -		
Automatic starting fuel delivery:		
1st speed 1/min: 310		

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 08.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/8F2300R425-5
 Type number : 0 460 484 064
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD9 A-L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.50...3.90
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.70...6.30
 Shutoff
 electromagnet Volt: 12
 Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/
 1000S.: 29.70...30.70
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.0
 1000S.: (3.0)
 Low-idle speed regulation
 Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 9.50...11.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.0
 1000S.: (3.0)
 Residual-Delivery Setting
 Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 2.50...3.50
 Shutoff
 electromagnet Volt: 12
 Full-load speed regulation
 Speed 1/min: 2650
 Del. quantity cm³/
 1000S.: 9.00...13.00
 Shutoff
 electromagnet Volt: 12
 Start:
 Speed 1/min: 100
 Del. quantity cm³/: 42.00...58.00
 mind 1000S.: 42.00
 Shutoff
 electromagnet Volt: 12
 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 Speed 1/min: 1250
 Inj.-qty. cm³/
 difference 1000S.: - 5.00...7.00 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250

Supply pump pressure difference	bar: - 0.10...0.30#	Shutoff electromagnet Volt: 12	1nd speed 1/min: 2900 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 0.00...6.00 1000S.: -
Inspection-pump test specifications Test specifications in parentheses			2nd speed 1/min: 2650 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 9.00...13.00 1000S.: (7.00...15.00)
Timing-device characteristic:			3rd speed 1/min: 2500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 19.50...25.50 1000S.: (17.50...27.50)
1st speed 1/min: 800 TD travel mm: 1.20...2.00 mm: (0.90...2.30)			4th speed 1/min: 2200 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 32.00...34.00 1000S.: (30.80...35.20)
electromagnet Volt: 12			5th speed 1/min: 1250 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 29.70...30.70 1000S.: (28.00...32.40)
2nd speed 1/min: 1250 TD travel mm: 3.50...3.90 mm: (3.00...4.40)			6th speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 29.80...32.80 1000S.: (28.30...34.30)
Shutoff electromagnet Volt: 12			Mech. shutoff: Mech. Abstellung:
3rd speed 1/min: 2000 TD travel mm: 6.70...7.50 mm: (6.40...7.80)			1st speed 1/min: 2200 Del. quantity cm ³ /: 0.00...3.00 1000S.: (MAX. 5.0)
Shutoff electromagnet Volt: 12			Shutoff electromagnet vclt: 12
Supply-pump pressure characteristic:			Electr. shutoff:
1st speed 1/min: 500 Supply-pump pressure bar: 3.30...3.90			1st speed 1/min: 375 Del. quantity cm ³ /: 0.00...3.00 1000S.: (MAX. 5.0)
Shutoff electromagnet Volt: 12			Shutoff electromagnet volt: -
2nd speed 1/min: 1250 Supply-pump pressure bar: 5.70...6.30			Damper set qty.:
Shutoff electromagnet Volt: 12			LFG-setting: solidale con carcassa: Idle delivery:
3rd speed 1/min: 2200 Supply-pump pressure bar: 8.20...8.80			1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 9.50...11.50 1000S.: (6.50...14.50)
Shutoff electromagnet Volt: 12			
Overflow quantity at overflow valve:			
1st speed 1/min: 500 Shutoff electromagnet Volt: 12			
Overflow : 41.70...83.40			
quantity cm ³ /10s: (26.70...98.40)			
2nd speed 1/min: 2200 Shutoff electromagnet Volt: 12			
Overflow : 55.60...139.00			
quantity cm ³ /10s: (40.60...154.00)			
Delivery-quant. and breakaway char.:			

High Idle:	Del. quantity cm ³ /: 37.00...71.00 1000S.: -
1st speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 8.50...9.50 1000S.: (5.50...13.50)	4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 42.00...68.00 1000S.: -
Residual:	Shutoff electromagnet:
1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 2.50...3.50 1000S.: (1.00...5.00)	Cut-in min voltage : 10.0 Rated voltage : 12.0
Load-dependent start of delivery: Inj.-qty.dif.measurement:	Mounting and assembly dimensions:
1st speed 1/min: 1250 Inj.-qty. cm ³ / : - 3.50..12.5" difference 1000S.: - Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Inj.-qty. cm ³ /: MAX. difference 1000S.: 2.00...8.00 '	Designation K mm: 3.6...3.8 KF mm: K-0T MS mm: 1.3...1.5 Ya mm: 18.8...22.8 Yb mm: 82.0...96.0
TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : 0.90...1.10 " difference mm: - Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 TD-travel : 2.00...3.00 ' difference mm: -	Remarks: :
SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pump- pressure : 1.20...1.80 ' difference bar: - Shutoff electromagnet Volt: 12	
Automatic starting fuel delivery:	
1st speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 20.00...40.00 1000S.: -	
2nd speed 1/min: 225 Shutoff electromagnet Volt: 12	

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 09.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE5/8F2200L336-7
 Type number : 0 460 485 012
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 074.3 (2.4L.)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...43.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Setting value mm: 3.80...4.20
 AFB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Setting value bar: 6.10...6.70

KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
 Del. quantity cm³/ 1000S.: 35.50...36.50

KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Dispersion cm³/: 2.0 1000S.: -

Low-idle speed regulation

Speed 1/min: 415
 Del. quantity cm³/ 1000S.: 7.00...9.00

KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 2.0 1000S.: -

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/ 1000S.: 4.50...5.50

KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
 Del. quantity cm³/ 1000S.: 10.00...14.00

KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ mind 1000S.: 35.00...61.00
 KSB/AFB Valve Volt: 12

Shutoff electromagnet Volt: 12	1st speed 1/min: 1000
Load-dependent start of delivery: Inj.-qty.dif.measurement:	Supply-pump pressure bar: 4.70...5.30
Speed 1/min: 1500 Inj.-qty. cm ³ /difference 1000S.: - 6.00...8.00 # KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1500 Supply pump pressure difference bar: -0.10..0.30 # KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 Supply-pump pressure bar: 6.10...6.70 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 7.40...8.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 500 Supply-pump pressure bar: 4.90...6.10 KSB/AFB valve Volt: - Shutoff electromagnet Volt: 12
Inspection-pump test specifications Test specifications in parentheses	Overflow quantity at overflow valve:
Timing-device characteristic:	1st speed 1/min: 750 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 Overflow quantity cm ³ /10s: 41.70...83.40 TD travel mm: 3.80...4.20 (27.80...97.30) 2nd speed 1/min: 2200 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 Overflow quantity cm ³ /10s: 55.60...139.90 TD travel mm: 0.50...1.30 (41.70...154.90) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 9th speed 1/min: 500 TD travel mm: 2.30...2.70 (1.50...3.50) KSB/AFB valve Volt: - Shutoff electromagnet Volt: 12
Supply-pump pressure characteristic:	Delivery-quant. and breakaway char.: 2nd speed 1/min: 2700 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 0.00...3.00 1000S.: (0.00...3.00) 5th speed 1/min: 2525 KSB/AFB valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (8.00...16.00)
 8th speed 1/min: 2425
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...28.00
 1000S.: (17.00...29.00)
 9th speed 1/min: 2200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.00...32.00
 1000S.: (28.80...33.20)
 12th speed 1/min: 1250
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.50...36.50
 1000S.: (33.80...38.20)
 15th speed 1/min: 750
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.00...35.00
 1000S.: (30.50...36.50)
 20th speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.50...37.50
 1000S.: (30.00...40.00)

Mech. shutoff:
 Electr. shutoff:
 1st speed 1/min: 415
 Del. quantity cm³/: 0.00...3.00
 1000S.: (MAX. 5.0)
 Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Damper set qty.:
 LFG-setting:
 solidale con carcassa:
 Idle delivery:
 1st speed 1/min: 415

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...9.00
 1000S.: (4.00...12.00)

Residual:
 1.Rotacao 1/min: 550
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...5.50
 1000S.: (3.00...7.00)
 2nd speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 5.00...7.00
 1000S.: (3.50...8.50)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1500
 Inj.-qty. cm³/ : - 5.50..11.5"
 difference 1000S.: (4.5...12.5)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Inj.-qty. cm³/: MAX.
 difference 1000S.: 0.00...3.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : - 0.60..0.80"
 difference mm: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 TD-travel : - 1.1...1.5 '
 difference mm: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : - 0.6...1.0 '
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...69.00
1000S.: (35.00...69.00)

2nd speed 1/min: 380
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...61.00
1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.6...5.9
MS	mm: 1.2...1.6
Ya	mm: 31.8...33.8
Yb	mm: 62.4...77.4

Remarks:

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 09.03.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE5/8F2000L524
 Type number : 0 460 485 014
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 2.4L. IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 2.60...3.00
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250	Setting value bar: 5.80...6.40
Shutoff electromagnet Volt: 12	
Full-load del. w/out charge press.:	
Speed 1/min: 1250	Del. quantity cm³/ 1000s.: 36.50...37.50
Shutoff electromagnet Volt: 12	Dispersion cm³/: 2.0 1000s.: (3.0)
Low-idle speed regulation	
Speed 1/min: 415	Del. quantity cm³/ 1000s.: 7.00...9.00
Shutoff electromagnet Volt: 12	Del. quantity cm³/: 2.0 1000s.: (3.0)
Full-load speed regulation	
Speed 1/min: 2100	Del. quantity cm³/ 1000s.: 10.00...14.00
Shutoff electromagnet Volt: 12	
Start:	
Speed 1/min: 100	Del. quantity cm³/: 35.00...61.00 mind 1000s.: 35.00
Shutoff electromagnet Volt: 12	
Inspection-pump test specifications Test specifications in parentheses	
Timing-device characteristic:	
2nd speed 1/min: 1850	TD travel mm: 4.60...5.40 mm: (4.30...5.70)
Shutoff electromagnet Volt: 12	
3rd speed 1/min: 1250	TD travel mm: 2.60...3.00 mm: (2.10...3.50)
Shutoff electromagnet Volt: 12	
4th speed 1/min: 750	TD travel mm: 0.40...1.20 mm: (0.30...1.50)

Shutoff	Del. quantity cm ³ :	36.5...38.5
electromagnet Volt: 12	1000S.:	-
Supply-pump pressure characteristic:		
1st speed 1/min: 1850	7th speed 1/min:	1250
Supply-pump pressure bar: 7.50...8.10	Shutoff	
Shutoff	electromagnet Volt: 12	
electromagnet Volt: 12	Del. quantity cm ³ :	36.50...37.50
2nd speed 1/min: 1250	1000S.:	(34.80...39.20)
Supply-pump pressure bar: 5.80...6.40	8th speed 1/min:	750
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt: 12	
3rd speed 1/min: 750	Del. quantity cm ³ :	32.00...35.00
Supply-pump pressure bar: 4.40...5.00	1000S.:	(30.50...36.50)
Shutoff	9th speed 1/min:	600
electromagnet Volt: 12	Shutoff	
Overflow quantity at overflow valve:	electromagnet Volt: 12	
1st speed 1/min: 600	Del. quantity cm ³ :	31.00...34.00
Shutoff	1000S.:	-
electromagnet Volt: 12	Mech. shutoff:	
Overflow : 41.70...83.40	Electr. shutoff:	
quantity cm ³ /10s: (27.80...97.30)	1st speed 1/min: 415	
2nd speed 1/min: 1950	Del. quantity cm ³ :	0.00...3.00
Shutoff	1000S.:	(MAX. 5.0)
electromagnet Volt: 12	Shutoff	
Overflow : 55.60...139.90	electromagnet volt: -	
quantity cm ³ /10s: (41.70...154.90)	Idle delivery:	
Delivery-quant. and breakaway char.:	1st speed 1/min: 415	
2nd speed 1/min: 2140	Shutoff	
Shutoff	electromagnet Volt: 12	
electromagnet Volt: 12	Del. quantity cm ³ :	7.00...9.00
Del. quantity cm ³ :	1000S.:	(4.00...12.00)
1000S.: (0.00...3.00)	2nd speed 1/min: 500	
3rd speed 1/min: 2120	Shutoff	
Shutoff	electromagnet Volt: 12	
electromagnet Volt: 12	Del. quantity cm ³ :	0.00...3.00
Del. quantity cm ³ :	1000S.:	-
1000S.: -	Automatic starting fuel delivery:	
4th speed 1/min: 2100	1st speed 1/min: 180	
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt: 12	
Del. quantity cm ³ :	Del. quantity cm ³ :	35.00...69.00
1000S.: (6.00...18.00)	1000S.:	(35.00...69.00)
5th speed 1/min: 1950	2nd speed 1/min: 380	
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt: 12	
Del. quantity cm ³ :	Del. quantity cm ³ :	15.00...35.00
1000S.: (34.00...36.00)	1000S.:	(15.00...35.00)
6th speed 1/min: 1500	4th speed 1/min: 100	
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt: 12	
Del. quantity cm ³ :	Del. quantity cm ³ :	35.00...61.00
1000S.: (32.80...37.20)	1000S.:	(35.00...61.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.6...6.0
Ya	mm: 34.3...36.3
Yb	mm: 61.0...71.0

Remarks:

⋮

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 03.03.93
 replaces : 13.04.92
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R416
 Type number : 0 460 494 273
 Customer Part-No. :

Customer-specific information
 Customer : RNUR

Engine : J8S - 890 JEEP

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...43.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
 Charge press. hPa: 800
 Setting value mm: 4.00...4.40
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400
 Charge press. hPa: 800
 Setting value bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12
 Full-load del. with charge press.:
 Speed 1/min: 1400
 Charge press. hPa: 800
 Del. quantity cm³/
 1000S.: 47.00...48.00

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 37.00...38.00
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
 Del. quantity cm³/
 1000S.: 7.00...11.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.5
 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2400
 Charge press. hPa: 800
 Del. quantity cm³/
 1000S.: 23.00...29.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 60.00...100.00
 mind 1000S.: 60.00
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 Charge press. hPa: 800

TD travel	mm: 6.20...7.00		1nd speed	1/min: 700*
	mm: (6.20...7.00)		Charge-air pressure-setting	
Shutoff			point	hPa: 200
electromagnet Volt:	12		LDA-stroke	mm: 5.5
3rd speed	1/min: 1400		Shutoff	
Charge press	hPa: 800		electromagnet Volt:	12
TD travel	mm: 4.00...4.40		Del. quantity cm ³ :	41.00...42.00
	mm: (3.50...4.90)		1000s.:	(38.50...44.50)
Shutoff			2nd speed	1/min: 2700
electromagnet Volt:	12		Charge press.	hPa: 800
4th speed	1/min: 1000		Shutoff	
Charge press	hPa: 800		electromagnet Volt:	12
TD travel	mm: 1.90...2.70		Del. quantity cm ³ :	0.00...3.00
	mm: (1.60...3.00)		1000s.:	(0.00...3.00)
Shutoff			3rd speed	1/min: 2500
electromagnet Volt:	12		Charge press.	hPa: 800
6th speed	1/min: 1800		Shutoff	
Charge press.	hPa: 800		electromagnet Volt:	12
TD travel	mm: 5.70...6.50		Del. quantity cm ³ :	2.50...17.50
	mm: (5.40...6.80)		1000s.:	(2.50...17.50)
Shutoff			5th speed	1/min: 2400
electromagnet Volt:	12		Charge press.	hPa: 800
Supply-pump pressure characteristic:			Shutoff	
1st speed	1/min: 600		electromagnet Volt:	12
Supply-pump			Del. quantity cm ³ :	23.00...29.00
pressure	bar: 2.60...3.20		1000s.:	(22.00...30.00)
Shutoff			9th speed	1/min: 2000
electromagnet Volt:	12		Charge press.	hPa: 800
2nd speed	1/min: 1400		Shutoff	
Charge press.	hPa: 800		electromagnet Volt:	12
Supply-pump			Del. quantity cm ³ :	43.40...45.40
pressure	bar: 5.10...5.70		1000s.:	(42.10...46.70)
Shutoff			12th speed	1/min: 1400
electromagnet Volt:	12		Charge press.	hPa: 800
3rd speed	1/min: 2000		Shutoff	
Charge press.	hPa: 800		electromagnet Volt:	12
Supply-pump			Del. quynity cm ³ :	47.00...48.00
pressure	bar: 6.90...7.50		1000s.:	(45.20...49.80)
Shutoff			18th speed	1/min: 600
electromagnet Volt:	12		Charge press.	hPa: -
Overflow quantity at overflow valve:			Shutoff	
1st speed	1/min: 600		electromagnet Volt:	12
Shutoff			Del. quantity cm ³ :	37.00...38.00
electromagnet Volt:	12		1000s.:	(34.50...40.50)
Overflow	: 41.70...83.40		20th speed	1/min: 1000
quantity cm ³ /10s:	(26.70...98.40)		Charge press.	hPa: 800
2nd speed	1/min: 2000		Shutoff	
Charge press.	hPa: 800		electromagnet Volt:	12
Shutoff			Del. quantity cm ³ :	44.90...47.90
electromagnet Volt:	12		1000s.:	(43.40...49.40)
Overflow	: 55.60...139.00		Mech. shutoff:	
quantity cm ³ /10s:	(40.60...154.00)		Electr. shutoff:	
Delivery-quant. and breakaway char.:			1st speed	1/min: 425
			Del. quantity cm ³ :	0.00...3.00
			1000s.:	(0.00...3.00)
			Shutoff	
			electromagnet volt:	-

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000s.: (5.00...13.00)
Dispersion cm³/: 2.5
1000s.: (3.0)
2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
3rd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...7.00
1000s.: (1.00...9.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...100.00
1000s.: (40.00...100.00)

2nd speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000s.: (20.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...100.00
1000s.: (60.00...100.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.7
SVS max.	mm: 4.8
LDA stroke	mm: 5.5
TLA-A	mm: 12.7
Ya	mm: 9.9...13.9
Yb	mm: 54.8...69.2

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.03.93
 replaces : 13.04.92
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445
 Type number : 0 460 494 278
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TE-L (Cit.)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 42.00...48.00
 Electronically : 40.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.40...3.80
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 5.60...6.20
 Shutoff
 electromagnet Volt: 12
 Full-load del. with charge press.:
 Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/ 1000S.: 53.50...54.50

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/ 1000S.: 37.50...38.50
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm³/ 1000S.: 12.0...14.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/ 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
 Del. quantity cm³/ 1000S.: 6.00...7.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm³/ 1000S.: 12.00...16.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 150
 Del. quantity cm³/ mind 1000S.: 37.00...67.00
 37.00

Shutoff electromagnet Volt: 12	Charge press. hPa: 1000 Supply-pump pressure bar: 7.30...7.90 Shutoff electromagnet Volt: 12
Load-dependent start of delivery: Inj.-qty.dif.measurement:	Overflow quantity at overflow valve: 1st speed 1/min: 500 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 quantity cm ³ /10s: (26.70...98.40) 2nd speed 1/min: 2150 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 quantity cm ³ /10s: (40.60...154.00)
Speed 1/min: 1250 Charge press hPa: - Inj.-qty. cm ³ / difference 1000s.: - 11.0..15.00 # Shutoff electromagnet Volt: 12 TD-travel dif.measurement correttore anticipo iniezione (SV) 1.Speed 1/min: 1250 Charge press hPa: - TD-travel difference mm: -0.90..1.10 # Shutoff electromagnet Volt: 12	Delivery-quant. and breakaway char.: 1nd speed 1/min: 750* Charge-air pressure-setting point hPa: 350 LDA-stroke mm: 5.8 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 46.00...47.00 1000s.: (43.50...49.50) 2nd speed 1/min: 2750 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 0.00...6.00 1000s.: (0.00...6.00) 5th speed 1/min: 2575 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 12.00...16.00 1000s.: (10.00...18.00) 8th speed 1/min: 2375 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 33.00...43.00 1000s.: (32.00...44.00) 9th speed 1/min: 2150 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 49.50...51.50 1000s.: (48.30...52.70) 10th speed 1/min: 2000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12
Inspection-pump test specifications Test specifications in parentheses	
Timing-device characteristic: 2nd speed 1/min: 2000 Charge press hPa: 1000 TD travel mm: 6.10...6.90 mm: (5.80...7.20) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Charge press hPa: 1000 TD travel mm: 3.40...3.80 mm: (2.90...4.30) Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Charge press hPa: 1000 TD travel mm: 1.10...1.90 mm: (0.80...2.20) Shutoff electromagnet Volt: 12	
Supply-pump pressure characteristic: 1st speed 1/min: 750 Charge press. hPa: 1000 Supply-pump pressure bar: 4.40...5.00 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 1000 Supply-pump pressure bar: 5.60...6.20 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000	

Del. quantity cm³/: 51.00...53.00
 1000S.: (49.80...54.20)
 12th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 53.50...54.50
 1000S.: (51.80...56.20)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.50...38.50
 1000S.: (35.00...41.00)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 46.50...49.50
 1000S.: (45.00...51.00)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (STR.MAX.5.0)
 Shutoff
 electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (STR.MAX.5.0)
 Shutoff
 electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.00...14.00
 1000S.: (9.00...17.00)

High Idle:

1st speed 1/mi: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 11.00...13.00
 1000S.: (8.00...16.00)

Residual:

1.Rotacao 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.00...7.00
 1000S.: (4.50...8.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: -
 Ini.-qty. cm³/ : -9.0...15.0 #
 difference 1000S.: -(8.0...18.0) #
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/: MAX.2.0..8.0"
 difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 0.9...1.1 #
 difference mm: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 2.1...2.5 "
 difference mm: - (1.6...3.0) "

SP press.-dif.measurement:
pompa di mandata (FP):
 1st speed 1/min: 1250
 Charge press. hPa: -
 Supply pump-
 pressure : - 0.7..1.50 "
 difference bar: -
 Shutoff
 electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 8,5

1st speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.0...35.0
 1000S.: MIKROSCHALTER

Automatic starting fuel delivery:

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 25.00...45.00
1000s.: (25.00...45.00)

3rd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 50.00...56.00
1000s.: (45.50...60.50)

4th speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 37.00...67.00
1000s.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: K-OT
LDA stroke	mm: 5.8
Ya	mm: 18.8...22.8
Yb	mm: 78.0...92.0

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
 Edition : 09.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2050R441
 Type number : 0 460 494 291
 Customer Part-No. :

Customer-specific information
 Customer : IVECO-SOFIM

Engine : 8144.97.1400

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: 0.2
 (from BDC): +0,02(0,04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 2.40...2.80
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 4.70...5.30
 Shutoff
 electromagnet Volt: 12
 Full-load del. with charge press.:
 Speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 65.00...66.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ : 3.0
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 41.00...42.00
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
 Charge press. hPa: -
 Del. quantity cm³/
 1000S.: 10.50...14.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/ : 2.5
 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 1000S.: 0.00...5.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 35.00...41.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 50.00...74.00
 mind 1000S.: 50.00

Shutoff electromagnet Volt: 12	2nd speed 1/min: 1000 Charge press. hPa: 1000 Supply-pump pressure bar: 4.70...5.30
Load-dependent start of delivery: Inj.-qty.dif.measurement:	Shutoff electromagnet Volt: 12 3rd speed 1/min: 2050 Charge press. hPa: 1000 Supply-pump pressure bar: 8.40...9.00
Speed 1/min: 1000 Charge press hPa: 1000 Inj.-qty. cm ³ / difference 1000S.: - 19.0...21.0 # Shutoff electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1000 Charge press hPa: 1000 Supply pump pressure difference bar: - 0.10..0.30# Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12
Inspection-pump test specifications Test specifications in parentheses	Overflow quantity at overflow valve: 1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 quantity cm ³ /10s: (26.70...98.40) 2nd speed 1/min: 2050 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50...139.00 quantity cm ³ /10s: (40.60...154.00)
Timing-device characteristic:	Delivery-quant. and breakaway char.: 1nd speed 1/min: 700* Charge-air pressure-setting point hPa: 350 LDA-stroke mm: 4.5 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 53.50...54.50 1000S.: (51.50...56.50) 2nd speed 1/min: 2750 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 2400 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 35.00...41.00 1000S.: (34.00...42.00) 9th speed 1/min: 2050 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 65.00...67.00 1000S.: (64.30...68.70) 12th speed 1/min: 1200 Charge press. hPa: 1000
2nd speed 1/min: 1800 Charge press hPa: 1000 TD travel mm: 8.00...8.80 mm: (7.70...9.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.00...2.40 mm: (1.70...2.70) Shutoff electromagnet Volt: 12 5th speed 1/min: 2050 Charge press. hPa: 1000 TD travel mm: 9.60...10.40 mm: (9.30...10.70) Shutoff electromagnet Volt: 12 6th speed 1/min: 1400 Charge press. hPa: 1000 TD travel mm: 4.80...5.60 mm: (4.50...5.90) Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 quantity cm ³ /10s: (26.70...98.40) 2nd speed 1/min: 2050 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50...139.00 quantity cm ³ /10s: (40.60...154.00)
Supply-pump pressure characteristic:	Delivery-quant. and breakaway char.: 1nd speed 1/min: 700* Charge-air pressure-setting point hPa: 350 LDA-stroke mm: 4.5 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 53.50...54.50 1000S.: (51.50...56.50) 2nd speed 1/min: 2750 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 2400 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 35.00...41.00 1000S.: (34.00...42.00) 9th speed 1/min: 2050 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 65.00...67.00 1000S.: (64.30...68.70) 12th speed 1/min: 1200 Charge press. hPa: 1000
1st speed 1/min: 700 Charge press. hPa: 1000 Supply-pump pressure bar: 3.10...3.70 Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 quantity cm ³ /10s: (26.70...98.40) 2nd speed 1/min: 2050 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50...139.00 quantity cm ³ /10s: (40.60...154.00)

Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quantity cm ³ /: 65.00...66.00	
1000S.: (63.50...67.50)	
18th speed 1/min: 500	
Charge press. hPa: -	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 41.00...42.00	
1000S.: (39.00...44.00)	
Mech. shutoff:	
Electr. shutoff:	
1st speed 1/min: 425	
Del. quantity cm ³ /: 0.00...3.00	
1000S.: (0.00...3.00)	
Shutoff	
electromagnet volt: -	
Damper set qty.:	
LFG-setting:	
solidale con carcassa:	
Idle delivery:	
1st speed 1/min: 425	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 10.50...14.50	
1000S.: (9.50...15.50)	
High Idle:	
1st speed 1/mi: 500	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 11.00...15.00	
1000S.: (10.00...16.00)	
Residual:	
1.Rotacao 1/min: 550	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 0.00...5.00	
1000S.: -	
Load-dependent start of delivery:	
Inj.-qty.dif.measurement:	
1st speed 1/min: 1000	
Charge press. hPa: 1000	
Inj.-qty. cm ³ / : - 18.0..26.0"	
difference 1000S.: -	
2nd speed 1/min: 1000	
Charge press. hPa: 1000	
Inj.-qty. cm ³ /: MAX.	
difference 1000S.: 4.0...6.0 '	
+	TD-travel dif.measurement: correttore anticipo iniezione (SV):
+	1st speed 1/min: 1000
+	Charge press. hPa: 1000
+	TD-travel : - 0.70...0.90'
+	difference mm: -
+	Shutoff
+	electromagnet Volt: 12
+	2nd speed 1/min: 1000
+	Charge press. hPa: 1000
+	TD-travel : - 1.1..1.9 '
+	difference mm: -
+	Shutoff
+	electromagnet Volt: 12
Part-load del.at 3rd inj.-qty.	
terza fermo della portata	
stop (EGR set)	
scarico) (ARF)	
gaz d'échappement-ARF)	
Spacing mm: 12.0	
1st speed 1/min: 1000	
Charge press. hPa: -	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 25.50...26.50	
1000S.: (23.50...28.50)	
Automatic starting fuel delivery:	
1st speed 1/min: 350	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 36.00...48.00	
1000S.: -	
2nd speed 1/min: 200	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 50.00...74.00	
1000S.: -	
4th speed 1/min: 100	
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 50.00...74.00	
1000S.: -	
Shutoff electromagnet:	
Cut-in	
min voltage : 10.0	
Rated voltage : 12.0	
Mounting and assembly dimensions:	

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 1.1...1.5
LDA stroke	mm: 4.5
Ya	mm: 41.3...43.3
Yo	mm: 45.0...50.6

Ajustement Potentiometer:

Angle for
pot. °: LL-ANSCH.

Supply voltage
pot. volt: 5.0

Output volt
pot. volt: 0.5

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
 Edition : 03.03.93
 replaces : 15.04.92
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2050R442
 Type number : 0 460 494 292
 Customer Part-No. :

Customer-specific information
 Customer : IVECO-SOFIM

Engine : 8144.97.2400 RENAULT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: 0.2
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 2.00...2.40
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 4.70...5.30
 Shutoff electromagnet Volt: 12

Full-load del. with charge press.:
 Speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 65.00...66.00

Shutoff electromagnet Volt: 12
 Dispersion cm³/ : 3.0
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 41.00...42.00

Shutoff electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
 Del. quantity cm³/
 1000S.: 10.50...14.50
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/ : 2.5
 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 1000S.: 0.50...4.50
 Shutoff electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 35.00...41.00

Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 50.00...74.00
 mind 1000S.: 50.00
 Shutoff electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 1000
Inj.-qty. cm³/
difference 1000S.: - 19.0...21.0 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1000
Charge press hPa: 1000
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800
Charge press hPa: 1000
TD travel mm: 8.00...8.80
mm: (7.70...9.10)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.00...2.40
mm: (1.50...2.90)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 2050
Charge press. hPa: 1000
TD travel mm: 9.60...10.40
mm: (9.30...10.70)
Shutoff
electromagnet Volt: 12
6th speed 1/min: 1400
Charge press. hPa: 1000
TD travel mm: 4.80...5.60
mm: (4.50...5.90)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.10...3.70
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000

Supply-pump
pressure bar: 4.70...5.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2050
Charge press. hPa: 1000
Supply-pump
pressure bar: 8.40...9.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 2050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 4.5
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 53.50...54.50
1000S.: (51.50...56.50)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 35.00...41.00
1000S.: (34.00...42.00)
9th speed 1/min: 2050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 65.00...68.00
1000S.: (64.30...68.70)
12th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quynlty cm³: 65.00...66.00
1000S.: (63.50...67.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.00...42.00
1000S.: (39.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.50...14.50
1000S.: (9.50...15.50)
2nd speed 1/min: 475
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...8.00
1000S.: -

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...15.00
1000S.: (10.00...16.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.50...4.50
1000S.: (0.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/ : -19.0..25.0 "
difference 1000S.: -(18.0..26.0) "
2nd speed 1/min: 1000
Charge press. hPa: 1000

Inj.-qty. cm³/: MAX
difference 1000S.: 2.00...8.00 '
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : - 0.7...0.9 "
difference mm: -
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : - 1.1...1.9 "
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...27.00
1000S.: (23.50...28.50)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...74.00
1000S.: (50.00...74.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...44.00
1000S.: (36.00...44.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...74.00
1000S.: (50.00...74.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 1.1...1.5
LDA stroke	mm: 4.5
FH	mm: MIKROSCH.
TLA-E	mm: 10.3
Ya	mm: 41.3...43.3
Yb	mm: 45.0...50.6

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 12.02.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2200L153-2
 Type number : 0 460 494 303
 Customer Part-No. :

Customer-specific information
 Customer : RNUR

Engine : J8S

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
 Charge press. hPa: 800
 Setting value mm: 4.00...4.40
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400
 Charge press hPa: 800
 Setting value bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
 Charge press. hPa: 800
 Del. quantity cm³/
 1000S.: 47.00...48.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ : 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 37.00...38.00
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
 Del. quantity cm³/
 1000S.: 7.00...11.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
 Charge press hPa: 800
 Del. quantity cm³/
 1000S.: 23.00...29.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 60.00...80.00
 mind 1000S.: 60.00
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
 Charge press hPa: 800
 TD travel mm: 1.90...2.70
 mm: (1.60...3.00)
 electromagnet Volt: 12.0

2nd speed	1/min: 1400		Shutoff
Charge press	hPa: 800		electromagnet Volt: 12
TD travel	mm: 4.00...4.40		Del. quantity cm ³ : 41.00...42.00
	mm: (3.50...4.90)		1000s.: (38.50...44.50)
Shutoff			3rd speed 1/min: 2700
electromagnet	Volt: 12		Charge press. hPa: 800
3rd speed	1/min: 1800		Shutoff
Charge press	hPa: 800		electromagnet Volt: 12
TD travel	mm: 5.70...6.50		Del. quantity cm ³ : 0.00...3.00
	mm: (5.40...6.80)		1000s.: -
Shutoff			4th speed 1/min: 2500
electromagnet	Volt: 12		Charge press. hPa: 800
4th speed	1/min: 2000		Shutoff
Charge press	hPa: 800		electromagnet Volt: 12.0
TD travel	mm: 6.2...7.0		Del. quantity cm ³ : 2.50...17.50
	mm: -		1000s.: -
Supply-pump pressure characteristic:			
1st speed	1/min: 600		5th speed 1/min: 2400
Charge press.	hPa: -		Charge press. hPa: 800
Supply-pump			Shutoff
pressure	bar: 2.60...3.20		electromagnet Volt: 12.0
Shutoff			Del. quantity cm ³ : 23.00...29.00
electromagnet	Volt: 12		1000s.: (22.00...30.00)
2nd speed	1/min: 1400		6th speed 1/min: 2000
Charge press.	hPa: 800		Charge press. hPa: 800
Supply-pump			Shutoff
pressure	bar: 5.10...5.70		electromagnet Volt: 12.0
Shutoff			Del. quantity cm ³ : 43.40...45.40
electromagnet	Volt: 12		1000s.: (42.10...46.70)
3rd speed	1/min: 2000		7th speed 1/min: 1400
Charge press.	hPa: 800		Charge press. hPa: 800
Supply-pump			Shutoff
pressure	bar: 6.90...7.50		electromagnet Volt: 12.0
Shutoff			Del. quantity cm ³ : 47.00...48.00
electromagnet	Volt: 12		1000s.: (45.20...49.80)
Overflow quantity at overflow valve:			
1st speed	1/min: 600		8th speed 1/min: 1000
Charge press.	hPa: -		Charge press. hPa: 800
Shutoff			Shutoff
electromagnet	Volt: 12.0		electromagnet Volt: 12
Overflow	: 41.70...33.40		Del. quantity cm ³ : 44.90...47.90
quantity	cm ³ /10s: (26.70...98.40)		1000s.: (43.40...49.40)
2nd speed	1/min: 2000		9th speed 1/min: 600
Charge press.	hPa: 800		Charge press. hPa: -
Shutoff			Shutoff
electromagnet	Volt: 12		electromagnet Volt: 12
Overflow	: 55.60...139.00		Del. quantity cm ³ : 37.00...38.00
quantity	cm ³ /10s: (40.60...154.00)		1000s.: (34.50...40.50)
Delivery-quant. and breakaway char.:			
1nd speed	1/min: 600		Mech. shutoff:
Charge-air pressure-setting			Electr. shutoff:
point	hPa: 200		1st speed 1/min: 425
LDA-stroke	mm: 4.5		Del. quantity cm ³ : 0.00...3.00
			1000s.: (0.00...3.00)
Shutoff			Shutoff
electromagnet volt:	-		electromagnet volt: -
Idle delivery:			
1st speed	1/min: 425		

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.50
1000s.: (5.00...13.00)

Dispersion cm³/: 2.5
1000s.: (3.0)

2nd speed 1/min: 520

Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 3.00...7.00
1000s.: (1.00...9.00)

3rd speed 1/min: 660

Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000s.: -

2nd speed 1/min: 180

Shutoff

electromagnet Volt: 12.0
Del. quantity cm³/: 40.00...100.00
1000s.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.3...1.7
SVS max. mm: 3.0
LDA stroke mm: 4.5
Ya mm: 38.8...42.8
Yb mm: 34.1...43.9

Remarks:

⋮

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 05.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2300R433-10
 Type number : 0 460 494 306
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 1,9 l UD im A3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 638 901 000

Opening Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 000

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value mm: 4.30...4.50
 Shutoff electromagnet Volt: 12

Supply-pump pressure

C05

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value bar: 5.40...6.00
 Shutoff electromagnet Volt: 12
 Full-load del. with charge press.:
 Speed 1/min: 1250
 Charge press. hPa: 750
 Del. quantity cm³/
 1000S.: 50.00...51.00
 Shutoff electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 37.2...43.2
 Shutoff electromagnet Volt: 12

Low-idle speed regulation:

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 16.0...18.0
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 2.0
 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 1000S.: 7.00...8.00
 Shutoff electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
 Charge press. hPa: 750
 Del. quantity cm³/
 1000S.: 9.00...13.00
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: -
 mind 1000S.: 40.0
 Shutoff electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000s.: - 4.5...6.5 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.10..0.30#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.50...9.10)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.60...5.20)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.00...2.60)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750

Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.90
quantity cm³/10s: (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...6.00
1000s.: (0.00...6.00)
5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 9.00...13.00
1000s.: (7.00...15.00)
8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 32.50...42.50
1000s.: (31.50...43.50)
9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 42.00...44.00
1000s.: (40.80...45.20)
12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 50.00...51.00
1000s.: (48.30...52.7)
20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 42.80...45.80
1000s.: (42.10...46.50)
21th speed 1/min: 450

Charge press. hPa: -		
Shutoff electromagnet Volt: 12	TD-travel difference : - 1.9..2.10 "	mm: -
Del. quantity cm ³ /: 37.20...43.20	Shutoff electromagnet Volt: 12	2nd speed 1/min: 1250
1000S.: (34.70...45.70)	TD-travel difference : - 2.5..2.90'	mm: -
Mech. shutoff:		
Electr. shutoff:	SP press.-dif.measurement:	
1st speed 1/min: 450	ponpa di mandata (FP):	
Del. quantity cm ³ /: 0.00...3.00	1st speed 1/min: 1250	Charge press. hPa: -
1000S.: (MAX. 5.0)	Supply pump-pressure : - 1.0..1.40 '	
Shutoff electromagnet volt: -	Shutoff electromagnet Volt: 12	
Damper set qty.:	Automatic starting fuel delivery:	
LFG-setting:	1st speed 1/min: 180	
solidale con carcassa:	Shutoff electromagnet Volt: 12	
Idle delivery:	Del. quantity cm ³ /: 35.00...55.00	
1st speed 1/min: 450	1000S.: (35.00...55.00)	
Shutoff electromagnet Volt: 12	2nd speed 1/min: 380	
Del. quantity cm ³ /: 16.00...18.00	Shutoff electromagnet Volt: 12	
1000S.: (13.00...21.00)	Del. quantity cm ³ /: 31.00...51.00	
High Idle:	1000S.: (31.00...51.00)	
1st speed 1/min: 550	3rd speed 1/min: 100	
Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12	
Del. quantity cm ³ /: 16.00...18.00	Del. quantity cm ³ /: 37.00...43.00	
1000S.: (13.00...21.00)	1000S.: (32.50...47.50)	
Residual:	Shutoff electromagnet:	
1.Rotacao 1/min: 550	Cut-in min voltage : 10.0	
Shutoff electromagnet Volt: 12	Rated voltage : 12.0	
Del. quantity cm ³ /: 7.00...8.00	Mounting and assembly dimensions:	
1000S.: (5.50...9.50)	Designation	
Load-dependent start of delivery:	K mm: 3.6...3.8	
Inj.-qty.dif.measurement:	KF mm: K-OT	
1st speed 1/min: 1250	MS mm: 1.1...1.5	
Inj.-qty. cm ³ / : - 7.0..11.0 "	Ya mm: 37.6...41.6	
difference 1000S.: - (5.0..13.0)	Yb mm: 49.9...64.3	
Shutoff electromagnet Volt: 12	Remarks:	
2nd speed 1/min: 1250	:	
Inj.-qty. cm ³ /: MAX.3.0 '	:	
difference 1000S.: -		
TD-travel dif.measurement:		
correttore anticipo iniezione (SV):		
1st speed 1/min: 1250		
Charge press. hPa: -		

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 05.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2300R433-14
 Type number : 0 460 494 307
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 1,9 l WK UD Golf

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 388 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 000

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value mm: 4.30...4.50
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet Volt: 12
 Full-load del. with charge press.:
 Speed 1/min: 1250
 Charge press. hPa: 750
 Del. quantity cm³/
 1000S.: 50.00...51.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³: 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 37.20...43.20
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 16.0...18.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 2.0
 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 1000S.: 7.00...8.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
 Charge press. hPa: 750
 Del. quantity cm³/
 1000S.: 9.00...13.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³: -
 mind 1000S.: 40.0
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 750
Inj.-qty. cm³/
difference 1000S.: - 4.5...6.5 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1. Speed 1/min: 1250
Charge press hPa: 750
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.50...9.10)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.60...5.20)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.00...2.60)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750

Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.90
quantity cm³/10s: (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 9.00...13.00
1000S.: (7.00...15.00)
8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 32.50...42.50
1000S.: (31.50...43.50)
9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 42.00...44.00
1000S.: (40.80...45.20)
12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 50.00...51.00
1000S.: (48.30...52.70)
20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 42.80...45.80
1000S.: (42.10...46.50)
21th speed 1/min: 450

Charge press. hPa: -	correttore anticipo iniezione (SV):
Shutoff	1st speed 1/min: 1250
electromagnet Volt: 12	Charge press. hPa: -
Del. quantity cm ³ : 37.20...43.20	TD-travel : - 1.90..2.10"
1000S.: (34.70...45.70)	difference mm: -
Mech. shutoff:	Shutoff
Electr. shutoff:	electromagnet Volt: 12
1st speed 1/min: 450	2nd speed 1/min: 1250
Del. quantity cm ³ : 0.00...3.00	Charge press. hPa: -
1000S.: (MAX. 5.0)	TD-travel : - 2.5..2.9 "
Shutoff	difference mm: - (2.1...3.3) "
electromagnet volt: -	SP press.-dif.measurement:
Damper set qty.:	pompa di mandata (FP):
LFG-setting:	1st speed 1/min: 1250
solidale con carcassa:	Charge press. hPa: -
Idle delivery:	Supply pump-
1st speed 1/min: 450	pressure : - 1.00..1.40'
Shutoff	difference bar: -
electromagnet Volt: 12	Shutoff
Del. quantity cm ³ : 16.00...18.00	electromagnet Volt: 12
1000S.: (13.00...21.00)	Part-load del.at 3rd inj.-qty.
High Idle:	terza fermo della portata
1st speed 1/mi: 500	stop (EGR set)
Shutoff	scarico) (ARF)
electromagnet Volt: 12	gaz d'échappement-ARF)
Del. quantity cm ³ : 16.00...18.00	Spacing mm: 12.0
1000S.: (13.00...21.00)	1st speed 1/min: 1000
Residual:	Charge press. hPa: 750
1.Rotacao 1/min: 550	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm ³ : 27.00...29.00
Del. quantity cm ³ : 16.00...18.00	1000S.: (25.00...31.00)
1000S.: (13.00...21.00)	Automatic starting fuel delivery:
Load-dependent start of delivery:	1st speed 1/min: 180
Inj.-qty.dif.measurement:	Shutoff
1st speed 1/min: 1250	electromagnet Volt: 12
Charge press. hPa: -	Del. quantity cm ³ : 35.00...55.00
Inj.-qty. cm ³ : - 7.0..11.0 "	1000S.: (35.00...55.00)
difference 1000S.: - (5.0...13.0)	2nd speed 1/min: 380
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1250	Del. quantity cm ³ : 31.00...51.00
Inj.-qty. cm ³ : MAX. 3.00	1000S.: (31.00...51.00)
difference 1000S.: -	3rd speed 1/min: 100
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
TD-travel dif.measurement:	Del. quantity cm ³ : 37.00...43.00
	1000S.: (32.50...47.50)
Cut-in min voltage : 10.0	Shutoff electromagnet:

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.1...1.5
Ya	mm: 37.5...41.6
Yb	mm: 49.9...62.8

Remarks:

:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 05.03.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R472
 Type number : 0 460 494 309
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TE-Y CATA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value mm: 3.90...4.30
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 5.40...6.00
 Shutoff electromagnet Volt: 12

Full-load del. with charge press.:
 Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 53.50...54.50

Shutoff electromagnet Volt: 12
 Dispersion cm³/ : 2.0
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 37.50...38.50

Shutoff electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000S.: 12.0...14.0

Shutoff electromagnet Volt: 12
 Del. quantity cm³/ : 2.0
 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 6.00...7.00

Shutoff electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 12.00...16.00

Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 150
 Del. quantity cm³/ : 37.00...67.00
 mind 1000S.: 37.00

Shutoff electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: MAX.34.0..36.0#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference mm: MAX.2.5..2.7#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
mm: (5.80...7.20)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
mm: (3.40...4.80)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.40...6.00
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000

Supply-pump
pressure bar: 6.50...7.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2150
charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 46.00...47.00
1000S.: (43.50...49.50)
2nd speed 1/min: 2750
charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2575
charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 12.00...16.00
1000S.: (10.00...18.00)
8th speed 1/min: 2375
charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 33.00...43.00
1000S.: (32.00...44.00)
9th speed 1/min: 2150
charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 49.50...51.50
1000S.: (48.30...52.70)
10th speed 1/min: 2000
charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³: 51.00...53.00
 1000S.: (49.80...54.20)
 12th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 53.50...54.50
 1000S.: (51.80...56.20)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 37.50...38.50
 1000S.: (35.00...41.00)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 46.50...49.50
 1000S.: (45.00...51.00)

Mech. shutoff:
 Mech. Abstellung:
 1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm³: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12

Electr. shutoff:
 1st speed 1/min: 400
 Del. quantity cm³: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:
 1st speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 12.00...14.00
 1000S.: (9.00...17.00)

High Idle:
 1st speed 1/mi: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 11.00...13.00
 1000S.: (8.00...16.00)

Residual:

1. Rotacao 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 6.00...7.00
 1000S.: (4.50...8.50)
 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³: MAX.
 difference 1000S.: 2.00...8.00 "
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : MAX.
 difference mm: 0.70...2.10 "
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : 0.00...0.60"
 difference mm: ALFB / 12 V

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure : - 1.3...1.9 "
 difference bar: -
 Shutoff
 electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 8.5

1st speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 27.00...35.0
 1000S.: MIKRO SCHALTER

Automatic starting fuel delivery:
 2nd speed 1/min: 380
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 25.00...45.00
1000s.: (25.00...45.00)

3rd speed 1/min: 200

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 50.00...56.00
1000s.: (45.50...60.50)

4th speed 1/min: 150

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 37.00...67.00
1000s.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: K-OT

MS mm: 1.1...1.5

Ya mm: 18.8...22.8

Yb mm: 78.0...92.0

Remarks:

:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2.1 F8
 Edition : 05.03.93
 replaces : -
 Calibrating oil! : ISO-4113

Injection pump : VE4/9F2150R474
 Type number : 0 460 494 310
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD11ATE-L BVM

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 2.30...2.70
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 5.00...5.60
 Shutoff electromagnet Volt: 12
 Full-load det. with charge press.:
 Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 61.00...62.00

Shutoff electromagnet Volt: 12
 Dispersion cm³/ 1000S.: (2.5)

Full-load det. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/ 1000S.: 42.50...43.50
 Shutoff electromagnet Volt: 12
 Dispersion cm³/ 1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 325
 Del. quantity cm³/ 1000S.: 12.0...14.0
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/ 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/ 1000S.: 2.50...3.50
 Shutoff electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
 Charge press. hPa: 1000
 Del. quantity cm³/ 1000S.: 49.00...55.00

Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ mind 1000S.: 70.00...80.00
 70.00

Shutoff electromagnet Volt: 12	Overflow quantity : 55.60...139.00 cm ³ /10s: (40.60...154.00)
Inspection-pump test specifications Test specifications in parentheses	Delivery-quant. and breakaway char.:
Timing-device characteristic:	
2nd speed 1/min: 2000 Charge press hPa: 1000 TD travel mm: 5.50...6.30 mm: (5.20...6.60)	Ind speed 1/min: 750* Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 7.1 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 56.00...57.00 1000s.: (53.50...59.50)
Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Charge press hPa: 1000 TD travel mm: 2.30...2.70 mm: (1.80...3.20)	2nd speed 1/min: 2700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 5.00...11.00 1000s.: (4.00...12.00)
Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 0.90...1.70 mm: (0.60...2.00)	3rd speed 1/min: 2400 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 33.50...40.50 1000s.: (33.00...41.00)
Shutoff electromagnet Volt: 12	5th speed 1/min: 2250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 49.00...55.00 1000s.: (48.00...56.00)
Supply-pump pressure characteristic:	9th speed 1/min: 2000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 55.00...58.00 1000s.: (54.20...58.80)
1st speed 1/min: 1000 Charge press. hPa: 1000 Supply-pump pressure bar: 4.30...4.90 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 1000 Supply-pump pressure bar: 5.00...5.60 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Charge press. hPa: 1000 Supply-pump pressure bar: 7.10...7.70 Shutoff electromagnet Volt: 12	10th speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 60.50...63.50 1000s.: (59.50...64.50) 12th speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 61.00...62.00 1000s.: (59.20...63.80) 18th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 quantity cm ³ /10s: (26.70...98.40) 2nd speed 1/min: 2000 Charge press. hPa: - Shutoff electromagnet Volt: 12
Overflow quantity at overflow valve:	Del. quantity cm ³ : 42.50...43.50 1000s.: (40.70...45.30) 20th speed 1/min: 500 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12

Del. quantity cm ³ /: 60.00...63.00 1000S.: (59.00...64.00)		
Mech. shutoff:	1st speed 1/min: 1000 charge press. hPa: 1000 shutoff	
Mech. Abstellung:	electromagnet volt: 12 Del. quantity cm ³ /: 15.50...16.50 1000S.: (13.00...19.00)	
1st speed 1/min: 2000 Charge press. hPa: 1000 Del. quantity cm ³ /: 0.00...3.00 1000S.: (0.00...3.00)		Automatic starting fuel delivery:
Shutoff electromagnet volt: 12	2nd speed 1/min: 325 Shutoff electromagnet Volt: 12	
Electr. shutoff:	Del. quantity cm ³ /: 37.00...44.00 1000S.: (36.50...44.50)	
1st speed 1/min: 325 Del. quantity cm ³ /: 0.00...3.00 1000S.: (0.00...3.00)	3rd speed 1/min: 200 Shutoff electromagnet Volt: 12	
Shutoff electromagnet volt: -	Del. quantity cm ³ /: 76.00...78.00 1000S.: (74.50...79.50)	
Damper set qty.:	4th speed 1/min: 100 Shutoff electromagnet Volt: 12	
LFG-setting: solidale con carcassa: Idle delivery:	Del. quantity cm ³ /: 70.00...80.00 1000S.: (68.00...82.00)	
1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 12.00...14.00 1000S.: (10.00...16.00)	Shutoff electromagnet:	
2nd speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 5.00...11.00 1000S.: (5.00...11.00)	Cut-in min voltage : 10.0 Rated voltage : 12.0	
High Idle:	Mounting and assembly dimensions:	
1st speed 1/mi: 450 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 11.00...13.00 1000S.: (9.00...15.00)	Designation K mm: 3.2...3.4 KF mm: 5.2...5.6 MS mm: 0.9...1.3 LDA stroke mm: 7.1 ALDA stroke mm: MIKROSCHE. FH mm: 12.0 MM Ya mm: 34.3...38.3 Yb mm: 73.7...88.3	
Residual:	Remarks: Operate control lever after each manifold-pressure compensator pressure change.	
1.Rotacao 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 2.50...3.50 1000S.: (0.50...5.50)	* Correction at adjusting nut	
Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0	For adjustment of switching point (EGR valve), include 12.0 mm spacer at third fuel-delivery stop.	

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 08.12.92
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE4/9F2250R423-2
 Type number : 0 460 494 326
 Customer-specific information
 Customer : RNUR
 Engine : J8S - 604/610 CA

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.60...4.00
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 1000

Setting value bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12
 Full-load del. with charge press.:
 Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 51.00...52.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)
 Full-load del. w/out charge press.:
 Speed 1/min: 750
 Del. quantity cm³/
 1000S.: 38.50...39.50
 Shutoff
 electromagnet Volt: 12
 Low-idle speed regulation
 Speed 1/min: 425
 Charge press hPa: -
 Del. quantity cm³/
 1000S.: 4.50...8.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.5
 1000S.: (2.5)
 Residual-Delivery Setting
 Speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm³/
 1000S.: 3.5...7.5
 Shutoff
 electromagnet Volt: 12
 Full-load speed regulation
 Speed 1/min: 2500
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 7.50...13.50
 Shutoff
 electromagnet Volt: 12
 Start:
 Speed 1/min: 100
 Charge press hPa: -
 Del. quantity cm³/: -
 mind 1000S.: 50.0
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: - 4.50...6.50 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2125
Charge press hPa: 1000
TD travel mm: 6.80...7.60
mm: (6.50...7.90)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.60...4.00
mm: (3.10...4.50)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2125
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: 1000

Supply-pump
pressure bar: 4.40...5.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.6...83.3
quantity cm³/10s: (26.6...98.3)
2nd speed 1/min: 2115
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.5...138.2
quantity cm³/10s: (40.5...153.8)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...46.50
1000S.: (43.00...49.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...13.50
1000S.: (6.50...14.50)
4th speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.40...36.40
1000S.: (27.40...37.40)
5th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.10...50.10
1000S.: (46.80...51.40)
6th speed 1/min: 1625
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm ³ /: 48.90...50.90 1000S.: (47.60...52.20)	1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 3.50...7.50 1000S.: -
7th speed 1/min: 1250 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 36.60...39.60 1000S.: (35.10...41.10)	Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Charge press. hPa: - Inj.-qty. cm ³ / : - 7.5...11.5' difference 1000S.: -
8th speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 51.00...52.00 1000S.: (49.20...53.80)	Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: - Inj.-qty. cm ³ / : MAX. difference 1000S.: 2.00...8.00 "
9th speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 50.60...53.60 1000S.: (49.10...55.10)	TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Charge press. hPa: - TD-travel : - 1.2...1.4 ' difference mm: -
10th speed 1/min: 750 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 38.50...39.50 1000S.: (36.00...42.00)	Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: - TD-travel : - 1.9...2.7 " difference mm: - Shutoff electromagnet Volt: 12
Mech. shutoff:	Automatic starting fuel delivery:
Electr. shutoff:	1st speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 20.00...50.00 1000S.: -
1st speed 1/min: 425 Charge press. hPa: - Del. quantity cm ³ /: 0.00...3.00 1000S.: -	2nd speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 50.00...90.00 1000S.: -
Shutoff electromagnet volt: -	3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 50.00...90.00 1000S.: -
Damper set qty.:	Shutoff electromagnet:
LFG-setting: solidale con carcassa: Idle delivery:	Cut-in min voltage : 10.0 Rated voltage : 12.0
1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 4.50...8.50 1000S.: (2.50...10.50)	
High Idle:	
1st speed 1/mi: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ /: 6.00...10.00 1000S.: (4.00...12.00)	
Residual:	

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.0...1.4
SVS max.	mm: 2.8
LDA stroke	mm: 6.0
ALDA stroke	mm: MIKROSCHE.
FH	mm: 6.0 MM
Ya	mm: 38.8...42.8
Yb	mm: 36.2...45.8

* Correction at adjusting nut
Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 08.12.92
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE4/9F2250R423-3
 Type number : 0 460 494 327

Customer-specific information
 Customer : RNUR

Engine : J8S - 604/610 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.60...4.00
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Charge press hPa: 1000
 Setting value bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 51.00...52.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
 Del. quantity cm³/
 1000S.: 38.50...39.50
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
 Charge press hPa: -
 Del. quantity cm³/
 1000S.: 4.50...8.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.5
 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm³/
 1000S.: 3.5...7.5

Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 7.50...13.50

Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Charge press hPa: -
 Del. quantity cm³/:
 mind 1000S.: 50.0

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: - 4.50...6.50 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2125
Charge press hPa: 1000
TD travel mm: 6.80...7.60
mm: (6.50...7.90)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.60...4.00
mm: (3.10...4.50)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2125
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000

Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.6...83.3
quantity cm³/10s: (26.6...98.3)
2nd speed 1/min: 2115
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.5...138.8
quantity cm³/10s: (40.5...153.8)
Shutoff
electromagnet Volt: 12

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...46.50
1000S.: (43.00...49.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...13.50
1000S.: (6.50...14.50)
4th speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.40...36.40
1000S.: (27.40...37.40)
5th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.10...50.10
1000S.: (46.80...51.40)
6th speed 1/min: 1625
Charge press. hPa: 1000

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 48.90...50.90
 1000S.: (47.60...52.20)
 7th speed 1/min: 1250
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.60...39.60
 1000S.: (35.10...41.10)
 8th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 51.00...52.00
 1000S.: (49.20...53.80)
 9th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.60...53.60
 1000S.: (49.10...55.10)
 10th speed 1/min: 750
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.50...39.50
 1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff
 electromagnet volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...8.50
 1000S.: (2.50...10.50)

High Idle:

1st speed 1/mi: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.00...10.00
 1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 3.50...7.50
 1000S.: -

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 7.5...11.5'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/: MAX.
 difference 1000S.: 2.00...8.00 "

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 1.2...1.4 '
 difference mm: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 1.9...2.7 "
 difference mm: -
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...50.00
 1000S.: -

2nd speed 1/min: 250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: -

3rd speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.0...1.4
SVS max.	mm: 2.8
LDA stroke	mm: 6.0
ALDA stroke	mm: MIKROSCHE.
FH	mm: 6.0 MM
Ya	mm: 38.8...42.8
Yb	mm: 36.2...45.8

* Correction at adjusting nut
marks:

Operate control lever after each
manifold-pressure compensator pressure
change.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 08.12.92
 replaces : -
 Calibrating oil : ISO 4113

Injection pump : VE4/9F2250R484
 Type number : 0 460 494 328

Customer-specific information
 Customer : RNUR

Engine : J8S - 778 US 87

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.40...3.80
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

C28

Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff electromagnet Volt: 12
Full-load del. with charge press.:
Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm ³ /
1000S.: 51.00...52.00
Shutoff electromagnet Volt: 12
Dispersion cm ³ /: 2.5
1000S.: (3.0)
Full-load del. w/out charge press.:
Speed 1/min: 750
Del. quantity cm ³ /
1000S.: 38.50...39.50
Shutoff electromagnet Volt: 12
Low-idle speed regulation
Speed 1/min: 425
Charge press hPa: -
Del. quantity cm ³ /
1000S.: 4.50...8.50
Shutoff electromagnet Volt: 12
Del. quantity cm ³ /: 2.5
1000S.: (2.5)
Residual-Delivery Setting
Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm ³ /
1000S.: 3.5...7.5
Shutoff electromagnet Volt: 12
Full-load speed regulation
Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm ³ /
1000S.: 7.50...13.50
Shutoff electromagnet Volt: 12
Start:
Speed 1/min: 100
Charge press hPa: -
Del. quantity cm ³ /:
mind 1000S.: 50.0

Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	Supply-pump pressure bar: 4.40...5.00
Load-dependent start of delivery:	Shutoff
Inj.-qty.dif.measurement:	electromagnet Volt: 12
Speed 1/min: 1250	Overflow quantity at overflow valve:
Charge press hPa: -	1st speed 1/min: 750
Inj.-qty. cm ³ /	Charge press. hPa: 1000
difference 1000s.: - 4.50...6.50 #	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Overflow : 41.6...83.3
SP press.-dif.measurement	quantity cm ³ /10s: (26.6...98.3)
pompa di mandata (FP)	2nd speed 1/min: 2115
1.Speed 1/min: 1250	Charge press. hPa: 1000
Charge press hPa: -	Shutoff
Supply pump	electromagnet Volt: 12
pressure	Overflow : 55.5...138.8
difference bar: - 0.1...0.3 #	quantity cm ³ /10s: (40.5...153.8)
Shutoff	Delivery-quant. and breakaway char.:
electromagnet Volt: 12	1st speed 1/min: 750*
Inspection-pump test specifications	Charge-air pressure-setting point hPa: 300
Test specifications in parentheses	LDA-stroke mm: 6.0
Timing-device characteristic:	Shutoff
1st speed 1/min: 2125	electromagnet Volt: 12
Charge press hPa: 1000	Del. quantity cm ³ /: 45.50...46.50
TD travel mm: 6.90...7.70	1000s.: (43.00...49.00)
mm: (6.70...7.90)	2nd speed 1/min: 2700
electromagnet Volt: 12	Charge press. hPa: 1000
2nd speed 1/min: 1250	Shutoff
Charge press hPa: 1000	electromagnet Volt: 12
TD travel mm: 3.40...3.80	Del. quantity cm ³ /: 0.00...3.00
mm: (3.10...4.10)	1000s.: -
Shutoff	3rd speed 1/min: 2500
electromagnet Volt: 12	Charge press. hPa: 1000
3rd speed 1/min: 1000	Shutoff
Charge press hPa: 1000	electromagnet Volt: 12
TD travel mm: 2.10...2.90	Del. quantity cm ³ /: 7.50...13.50
mm: (1.90...3.10)	1000s.: (6.50...14.50)
Shutoff	4th speed 1/min: 2350
electromagnet Volt: 12	Charge press. hPa: 1000
Supply-pump pressure characteristic:	Shutoff
1st speed 1/min: 2125	electromagnet Volt: 12
Charge press. hPa: 1000	Del. quantity cm ³ /: 28.40...36.40
Supply-pump	1000s.: (27.40...37.40)
pressure bar: 7.50...8.10	5th speed 1/min: 2125
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	Shutoff
2nd speed 1/min: 1250	electromagnet Volt: 12
Charge press. hPa: 1000	Del. quantity cm ³ /: 48.10...50.10
Supply-pump	1000s.: (46.80...51.40)
pressure bar: 5.10...5.70	6th speed 1/min: 1625
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	Shutoff
3rd speed 1/min: 1000	electromagnet Volt: 12

Del. quantity cm ³ : 48.90...50.90 1000S.: (47.60...52.20)	1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 3.50...7.50 1000S.: -
7th speed 1/min: 1250 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 36.60...39.60 1000S.: (35.10...41.10)	Load-dependent start of delivery: Inj.-qty.dif.measurement:
8th speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 51.00...52.00 1000S.: (49.20...53.80)	1st speed 1/min: 1250 Charge press. hPa: - Inj.-qty. cm ³ : - 6.5...12.5' difference 1000S.: -(5.5...13.5) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: - Inj.-qty. cm ³ : MAX. difference 1000S.: 2.00...8.00 "
9th speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 50.60...53.60 1000S.: (49.10...55.10)	TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Charge press. hPa: - TD-travel : - 1.2...1.4 ' difference mm: - Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: - TD-travel : - 1.9...2.7 " difference mm: - Shutoff electromagnet Volt: 12
10th speed 1/min: 750 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 38.50...39.50 1000S.: (36.00...42.00)	Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0
Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Charge press. hPa: - Del. quantity cm ³ : 0.00...3.00 1000S.: - Shutoff electromagnet volt: -	1st speed 1/min: 825 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 25.50...26.50 1000S.: (23.50...28.50)
Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 4.50...8.50 1000S.: (2.50...10.50)	Automatic starting fuel delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 20.00...50.00 1000S.: - 2nd speed 1/min: 250 Shutoff electromagnet Volt: 12
High Idle: 1st speed 1/mi: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 6.00...10.00 1000S.: (4.00...12.00)	
Residual:	

Del. quantity cm³/: 50.00...90.00
1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-0T
MS	mm: 1.0...1.4
SVS max.	mm: 1.4
LDA stroke	mm: 6.0
ALDA stroke	mm: MIKROSCHE
FH	mm: 6.0 MM
Ya	mm: 38.8...42.8
Yb	mm: 36.2...45.8

* Correction at adjusting nut

Operate control lever after each
manifold-pressure compensator pressure
change.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 08.12.92
 replaces : -
 Calibrating oil : ISO 4113

Injection pump : VE4/9F2250R484-1
 Type number : 0 460 494 329

Customer-specific information
 Customer : RNUR

Engine : J8S - 778 US 87

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.40...3.80
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Charge press hPa: 1000
 Setting value bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:
 Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 51.00...52.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ : 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
 Del. quantity cm³/
 1000S.: 38.50...39.50
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
 Charge press hPa: -
 Del. quantity cm³/
 1000S.: 4.50...8.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/ : 2.5
 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm³/
 1000S.: 3.5...7.5
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 7.50...13.50
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Charge press hPa: -
 Del. quantity cm³/ : -
 mind 1000S.: 50.0

Shutoff	charge press. hPa: 1000
electromagnet Volt: 12	Supply-pump
	pressure bar: 4.40...5.00
Load-dependent start of delivery:	Shutoff
Inj.-qty.dif.measurement:	electromagnet Volt: 12
Speed 1/min: 1250	Overflow quantity at overflow valve:
Charge press hPa: -	1st speed 1/min: 750
Inj.-qty. cm ³ /	charge press. hPa: 1000
difference 1000s.: - 4.50...6.50 #	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Overflow : 41.6...83.3
SP press.-dif.measurement	quantity cm ³ /10s: (26.6...98.3)
pompa di mandata (FP)	2nd speed 1/min: 2115
1. Speed 1/min: 1250	charge press. hPa: 1000
Charge press hPa: -	Shutoff
Supply pump	electromagnet Volt: 12
pressure	Overflow : 55.5...138.8
difference bar: - 0.1...0.3 #	quantity cm ³ /10s: (40.5...153.8)
Shutoff	Delivery-quant. and breakaway char.:
electromagnet Volt: 12	1nd speed 1/min: 750*
Inspection-pump test specifications	charge-air pressure-setting
Test specifications in parentheses	point hPa: 300
Timing-device characteristic:	LDA-stroke mm: 6.0
1st speed 1/min: 2125	Shutoff
Charge press hPa: 1000	electromagnet Volt: 12
TD travel mm: 6.90...7.70	Del. quantity cm ³ : 45.50...46.50
	1000s.: (43.00...49.00)
electromagnet Volt: 12	2nd speed 1/min: 2700
2nd speed 1/min: 1250	charge press. hPa: 1000
Charge press hPa: 1000	Shutoff
TD travel mm: 3.40...3.80	electromagnet Volt: 12
	Del. quantity cm ³ : 0.00...3.00
Shutoff	1000s.: -
electromagnet Volt: 12	3rd speed 1/min: 2500
3rd speed 1/min: 1000	charge press. hPa: 1000
Charge press hPa: 1000	Shutoff
TD travel mm: 2.10...2.90	electromagnet Volt: 12
	Del. quantity cm ³ : 7.50...13.50
Shutoff	1000s.: (6.50...14.50)
electromagnet Volt: 12	4th speed 1/min: 2350
Supply-pump pressure characteristic:	charge press. hPa: 1000
1st speed 1/min: 2125	Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump	Del. quantity cm ³ : 28.40...36.40
pressure bar: 7.50...8.10	1000s.: (27.40...37.40)
Shutoff	5th speed 1/min: 2125
electromagnet Volt: 12	charge press. hPa: 1000
2nd speed 1/min: 1250	Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump	Del. quantity cm ³ : 48.10...50.10
pressure bar: 5.10...5.70	1000s.: (46.80...51.40)
Shutoff	6th speed 1/min: 1625
electromagnet Volt: 12	charge press. hPa: 1000
3rd speed 1/min: 1000	Shutoff
	electromagnet Volt: 12

Del. quantity cm ³ /: 48.90...50.90 1000S.: (47.60...52.20)	1.Rotacao 1/min: 500 Shutoff
7th speed 1/min: 1250	electromagnet Volt: 12
Charge press. hPa: -	Del. quantity cm ³ /: 3.50...7.50 1000S.: -
Shutoff	
electromagnet Volt: 12	
Del. quantity cm ³ /: 36.60...39.60 1000S.: (35.10...41.10)	
8th speed 1/min: 1250	Load-dependent start of delivery: Inj.-qty.dif.measurement:
Charge press. hPa: 1000	
Shutoff	
electromagnet Volt: 12	1st speed 1/min: 1250
Del. quantity cm ³ /: 51.00...52.00 1000S.: (49.20...53.80)	Charge press. hPa: -
9th speed 1/min: 1000	Inj.-qty. cm ³ / : - 5.5...13.5' difference 1000S.: -
Charge press. hPa: 1000	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	2nd speed 1/min: 1250
Del. quantity cm ³ /: 50.60...53.60 1000S.: (49.10...55.10)	Charge press. hPa: -
10th speed 1/min: 750	Inj.-qty. cm ³ /: MAX.2.0..8.0" difference 1000S.: -
Charge press. hPa: -	
Shutoff	
electromagnet Volt: 12	TD-travel dif.measurement: correttore anticipo iniezione (SV):
Del. quantity cm ³ /: 38.50...39.50 1000S.: (36.00...42.00)	1st speed 1/min: 1250
Mech. shutoff:	Charge press. hPa: -
Electr. shutoff:	TD-travel : - 1.2...1.4 '
1st speed 1/min: 425	difference mm: -
Charge press. hPa: -	Shutoff
Del. quantity cm ³ /: 0.00...3.00 1000S.: -	electromagnet Volt: 12
Shutoff	
electromagnet volt: -	Part-load del.at 3rd inj.-qty. terza fermo della portata
Damper set qty.:	stop (EGR set) scarico) (ARF)
LFG-setting:	gaz d'échappement-ARF)
solidale con carcassa:	Spacing mm: 12.0
Idle delivery:	
1st speed 1/min: 425	1st speed 1/min: 825
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	Shutoff
Del. quantity cm ³ /: 4.50...8.50 1000S.: (2.50...10.50)	electromagnet Volt: 12
High Idle:	Del. quantity cm ³ /: 25.50...26.50 1000S.: (23.50...28.50)
1st speed 1/mi: 500	
Shutoff	
electromagnet Volt: 12	Automatic starting fuel delivery:
Del. quantity cm ³ /: 6.00...10.00 1000S.: (4.00...12.00)	1st speed 1/min: 350
Residual:	Shutoff
	electromagnet Volt: 12
	Del. quantity cm ³ /: 20.00...50.00 1000S.: -
	2nd speed 1/min: 250
	Shutoff
	electromagnet Volt: 12

Del. quantity cm³/: 50.00...90.00
1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation mm:
K 3.6...3.8
KF mm: K-0T
MS mm: 1.0...1.4
SVS max. mm: 1.4
LDA stroke mm: 6.0
ALDA stroke mm: MIKROSCHE.
FH mm: 6.0 MM
Ya mm: 38.8...42.8
Yb mm: 36.2...45.8

* Correction at adjusting nut

Operate control lever after each
manifold-pressure compensator pressure
change.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 05.03.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R486
 Type number : 0 460 494 332
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : G8T - 706

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.30...3.70
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet Volt: 12

Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/
 1000S.: 38.00...39.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)

Low-idle speed regulation
 Speed 1/min: 385
 Del. quantity cm³/
 1000S.: 10.0...14.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.5
 1000S.: (2.5)

Residual-Delivery Setting
 Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 1.00...5.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation
 Speed 1/min: 2600
 Del. quantity cm³/
 1000S.: 20.00...26.00
 Shutoff
 electromagnet Volt: 12

Start:
 Speed 1/min: 100
 Del. quantity cm³/: 45.00...75.00
 mind 1000S.: 45.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 Speed 1/min: 1250
 Inj.-qty. cm³/
 difference 1000S.: -- 6.10..8.10 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1. Speed 1/min: 1250

Supply pump pressure difference bar: - 0.1...0.3 #	Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12
Inspection-pump test specifications Test specifications in parentheses		Overflow quantity cm ³ /10s: (40.60...154.00)
Timing-device characteristic:		Delivery-quant. and breakaway char.:
2nd speed 1/min: 2000 TD travel mm: 7.20...8.00 mm: (7.00...8.20)	2nd speed 1/min: 2800 Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12	Del. quantity cm ³ : 0.00...5.00 1000S.: (0.00...5.00)	
3rd speed 1/min: 1250 TD travel mm: 3.30...3.70 mm: (3.00...4.00)	5th speed 1/min: 2600 Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12	Del. quantity cm ³ : 20.00...26.00 1000S.: (19.00...27.00)	
4th speed 1/min: 1000 TD travel mm: 1.60...2.40 mm: (1.40...2.60)	8th speed 1/min: 2500 Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12	Del. quantity cm ³ : 30.00...38.00 1000S.: (29.00...39.00)	
9th speed 1/min: 750 TD travel mm: 1.00...3.40 mm: (1.00...3.40)	9th speed 1/min: 2300 Shutoff electromagnet Volt: 12	
KSB/AFB valve	Del. quantity cm ³ : 41.00...43.00 1000S.: (39.70...44.30)	
Shutoff electromagnet Volt: 12	10th speed 1/min: 2000 Shutoff electromagnet Volt: 12	
Supply-pump pressure characteristic:	Del. quantity cm ³ : 41.50...43.50 1000S.: (40.20...44.80)	
1st speed 1/min: 1000 Supply-pump pressure bar: 4.40...5.00	12th speed 1/min: 1250 Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12	Del. quantity cm ³ : 38.00...39.00 1000S.: (36.20...40.80)	
2nd speed 1/min: 1250 Supply-pump pressure bar: 5.90...6.50	15th speed 1/min: 1000 Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12	Del. quantity cm ³ : 37.00...40.00 1000S.: (36.20...40.80)	
3rd speed 1/min: 2000 Supply-pump pressure bar: 7.90...8.50	20th speed 1/min: 750 Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12	Del. quantity cm ³ : 36.10...39.10 1000S.: (35.30...39.90)	
Overflow quantity at overflow valve:	Mech. shutoff:	
1st speed 1/min: 750 Shutoff electromagnet Volt: 12	Electr. shutoff:	
Overflow quantity cm ³ /10s: (41.70...83.40 2nd speed 1/min: 2300	1st speed 1/min: 385 Del. quantity cm ³ : 0.00...3.00 1000S.: (0.00...3.00)	
	Shutoff electromagnet volt: -	
	Damper set qty.:	

LFG-setting:	Shutoff
solidale con carcassa:	electromagnet Volt: 12
Idle delivery:	Del. quantity cm ³ /: 22.50...23.50 1000S.: (20.50...25.50)
1st speed 1/min: 385	Automatic starting fuel delivery:
Shutoff	1st speed 1/min: 200
electromagnet Volt: 12	Shutoff
Del. quantity cm ³ /: 10.00...14.00	electromagnet Volt: 12
1000S.: (8.00...16.00)	Del. quantity cm ³ /: 45.00...95.00 1000S.: (45.00...95.00)
High Idle:	2nd speed 1/min: 350
1st speed 1/min: 435	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm ³ /: 15.00...45.00
Del. quantity cm ³ /: 6.50...10.50	1000S.: (15.00...45.00)
1000S.: (4.50...12.50)	4th speed 1/min: 100
Residual:	Shutoff
1.Rotacao 1/min: 450	electromagnet Volt: 12
Shutoff	Del. quantity cm ³ /: 45.00...75.00
electromagnet Volt: 12	1000S.: (45.00...75.00)
Del. quantity cm ³ /: 1.00...5.00	Shutoff electromagnet:
1000S.: (1.00...5.00)	Cut-in
Load-dependent start of delivery:	min voltage : 10.0
Inj.-qty.dif.measurement:	Rated voltage : 12.0
1st speed 1/min: 1250	Mounting and assembly dimensions:
Inj.-qty. cm ³ / : - 7.4..11.4 "	Designation
difference 1000S.: -	K mm: 3.6...3.8
Shutoff	KF mm: K-OT
electromagnet Volt: 12	MS mm: 0.6...1.0
2nd speed 1/min: 1250	ALDA stroke mm: MIKROSCH.
Inj.-qty. cm ³ /: MAX.	FH mm: 13.6 MM
difference 1000S.: 2.00...8.00	Ya mm: 27.8...31.8
Shutoff	Yb mm: 52.1...61.9
electromagnet Volt: 12	Remarks:
TD-travel dif.measurement:	:
correttore anticipo iniezione (SV):	:
1st speed 1/min: 1250	
TD-travel : - 0.70..0.90"	
difference mm: -	
Shutoff	
electromagnet Volt: 12	
2nd speed 1/min: 1250	
TD-travel : - 1.0...1.4 '	
difference mm: -	
Part-load del.at 3rd inj.-qty.	
terza fermo della portata	
stop (EGR set)	
scarico) (ARF)	
gaz d'échappement-ARF)	
Spacing mm: 12.0	
1st speed 1/min: 1250	

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 05.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2400R486-1
 Type number : 0 460 494 333
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : G8T - 706 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.30...3.70
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet Volt: 12
 Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/
 1000S.: 38.00...39.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 385
 Del. quantity cm³/
 1000S.: 10.0...14.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.5
 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 1.00...5.00

Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
 Del. quantity cm³/
 1000S.: 20.00...26.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 45.00...75.00
 mind 1000S.: 45.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/
 difference 1000S.: -- 6.1...8.1 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250

Supply pump pressure difference bar: - 0.1...0.3 # Shutoff electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed	1/min: 2000	Shutoff electromagnet Volt: 12
TD travel	mm: 7.20...8.00	Overflow quantity cm ³ /10s: 55.60...139.00
	mm: (7.00...8.20)	cm ³ /10s: (40.60...154.00)

3rd speed	1/min: 1250	Delivery-quant. and breakaway char.:
TD travel	mm: 3.30...3.70	2nd speed 1/min: 2800
	mm: (3.00...4.00)	Shutoff electromagnet Volt: 12

4th speed	1/min: 1000	Del. quantity cm ³ /: 0.00...5.00
TD travel	mm: 1.60...2.40	1000s.: (0.00...5.00)
	mm: (1.40...2.60)	5th speed 1/min: 2600

5th speed	1/min: 750	Shutoff electromagnet Volt: 12
TD travel	mm: 1.00...3.40	Del. quantity cm ³ /: 20.00...26.00
	mm: (1.00...3.40)	1000s.: (19.00...27.00)

6th speed	1/min: 500	8th speed 1/min: 2500
TD travel	mm: 0.60...2.00	Shutoff electromagnet Volt: 12
	mm: (0.40...2.20)	Del. quantity cm ³ /: 30.00...38.00

7th speed	1/min: 375	1000s.: (29.00...39.00)
TD travel	mm: 0.40...1.40	9th speed 1/min: 2300
	mm: (0.30...1.50)	Shutoff electromagnet Volt: 12

8th speed	1/min: 250	Del. quantity cm ³ /: 41.00...43.00
TD travel	mm: 0.20...0.80	1000s.: (39.70...44.30)
	mm: (0.10...0.90)	10th speed 1/min: 2000

9th speed	1/min: 160	Shutoff electromagnet Volt: 12
TD travel	mm: 0.10...0.40	Del. quantity cm ³ /: 41.50...43.50
	mm: (0.05...0.45)	1000s.: (40.20...44.80)

10th speed	1/min: 125	12th speed 1/min: 1250
TD travel	mm: 0.05...0.20	Shutoff electromagnet Volt: 12
	mm: (0.02...0.25)	Del. quantity cm ³ /: 38.00...39.00

11th speed	1/min: 100	1000s.: (36.20...40.80)
TD travel	mm: 0.02...0.10	15th speed 1/min: 1000
	mm: (0.01...0.15)	Shutoff electromagnet Volt: 12

12th speed	1/min: 75	Del. quantity cm ³ /: 37.00...40.00
TD travel	mm: 0.01...0.05	1000s.: (36.20...40.80)
	mm: (0.00...0.08)	20th speed 1/min: 750

13th speed	1/min: 50	Shutoff electromagnet Volt: 12
TD travel	mm: 0.01...0.02	Del. quantity cm ³ /: 36.10...39.10
	mm: (0.00...0.03)	1000s.: (35.30...39.90)

Supply-pump pressure characteristic:

1st speed	1/min: 1000	Mech. shutoff:
Supply-pump pressure	bar: 4.40...5.00	Electr. shutoff:
Shutoff electromagnet Volt	12	1st speed 1/min: 385
2nd speed	1/min: 1250	Del. quantity cm ³ /: 0.00...3.00
Supply-pump pressure	bar: 5.90...6.50	1000s.: (0.00...3.00)
Shutoff electromagnet Volt	12	Shutoff electromagnet volt: -
3rd speed	1/min: 2000	Damper set qty.:
Supply-pump pressure	bar: 7.90...8.50	
Shutoff electromagnet Volt	12	

Overflow quantity at overflow valve:

1st speed	1/min: 750	
Shutoff electromagnet Volt	12	
Overflow quantity	: 41.70...83.40	
2nd speed	1/min: 2300	

LFG-setting:	
solidale con carcassa:	
Idle delivery:	
1st speed 1/min: 385	1st speed 1/min: 1250
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quantity cm ³ /: 10.00...14.00	Del. quantity cm ³ /: 22.50...23.50
1000S.: (8.00...16.00)	1000S.: (20.50...25.50)
High Idle:	Automatic starting fuel delivery:
1st speed 1/mi: 435	1st speed 1/min: 200
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quantity cm ³ /: 6.50...10.50	Del. quantity cm ³ /: 45.00...95.00
1000S.: (4.50...12.50)	1000S.: (45.00...95.00)
Residual:	2nd speed 1/min: 350
1.Rotacao 1/min: 450	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm ³ /: 15.00...45.00
Del. quantity cm ³ /: 1.00...5.00	1000S.: (15.00...45.00)
1000S.: (1.00...5.00)	4th speed 1/min: 100
Load-dependent start of delivery:	Shutoff
Inj.-qty.dif.measurement:	electromagnet Volt: 12
1st speed 1/min: 1250	Del. quantity cm ³ /: 45.00...75.00
Inj.-qty. cm ³ / : - 7.4..11.4 "	1000S.: (45.00...75.00)
difference 1000S.: -	Shutoff electromagnet:
Shutoff	Cut-in
electromagnet Volt: 12	min voltage : 10.0
2nd speed 1/min: 1250	Rated voltage : 12.0
Inj.-qty. cm ³ /: MAX.	Mounting and assembly dimensions:
difference 1000S.: 2.00...8.00	Designation
Shutoff	K mm: 3.6...3.8
electromagnet Volt: 12	KF mm: K-OT
TD-travel dif.measurement:	MS mm: 0.6...1.0
correttore anticipo iniezione (SV):	ALDA stroke mm: MIKROSCHE.
1st speed 1/min: 1250	FH mm: 13.6 MM
TD-travel : - 0.70..0.90"	Ya mm: 27.8...31.8
difference mm: -	Yb mm: 52.1...61.9
Shutoff	Remarks:
electromagnet Volt: 12	:
2nd speed 1/min: 1250	:
TD-travel : - 1.0...1.4 "	
difference mm: -	
Shutoff	
electromagnet Volt: 12	
Part-load del.at 3rd inj.-qty.	
terza fermo della portata	
stop (EGR set)	
scarico) (ARF)	
gaz d'échappement-ARF)	
Spacing mm: 12.0	

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 05.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2200R420-2
 Type number : 0 460 494 336
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 028.D-1.9L UD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 000

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.70...4.10
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250	Setting value bar: 5.50...6.10
Shutoff electromagnet Volt: 12	
Full-load del. w/out charge press.:	
Speed 1/min: 1250	Del. quantity cm ³ /
1000S.: 42.00...43.00	
Shutoff electromagnet Volt: 12	Dispersion cm ³ /: 2.5
1000S.: (3.0)	
Low-idle speed regulation	
Speed 1/min: 450	Del. quantity cm ³ /
1000S.: 9.00...11.00	
Shutoff electromagnet Volt: 12	Del. quantity cm ³ /: 2.0
1000S.: (3.0)	
Residual-Delivery Setting	
Speed 1/min: 575	Del. quantity cm ³ /
1000S.: 5.50...6.50	
Shutoff electromagnet Volt: 12	
Full-load speed regulation	
Speed 1/min: 2525	Del. quantity cm ³ /
1000S.: 10.00...14.00	
Shutoff electromagnet Volt: 12	
Start:	
Speed 1/min: 100	Del. quantity cm ³ /: 35.00...65.00
mind 1000S.: 35.00	
Shutoff electromagnet Volt: 12	
Load-dependent start of delivery: Inj.-qty.dif.measurement:	
Speed 1/min: 1250	Inj.-qty. cm ³ /
difference 1000S.: - 5.00...7.00 #	
Shutoff electromagnet Volt: 12	
SP press.-dif.measurement	
pompa di mandata (FP)	
1.Speed 1/min: 1250	

Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.60...7.40
mm: (6.30...7.70)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.70...4.10
mm: (3.20...4.60)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.60...2.40
mm: (1.30...2.70)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.50...6.10
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure bar: 7.70...8.30
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.90
quantity cm³/10s: (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...6.00
1000s.: (0.00...6.00)
5th speed 1/min: 2525
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 10.00...14.00
1000s.: (8.00...16.00)
8th speed 1/min: 2425
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 19.00...29.00
1000s.: (18.00...30.00)
9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 36.70...38.70
1000s.: (35.50...39.90)
12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 42.00...43.00
1000s.: (40.30...44.70)
20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 33.70...36.70
1000s.: (32.20...38.20)
21th speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 35.50...41.50
1000s.: (33.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³: 0.00...3.00
1000s.: (0.00...3.00)
Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 9.00...11.00
1000s.: (6.00...14.00)

High Idle:

1st speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1.Rotacao 1/min: 575
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 5.50...6.50
1000S.: (4.00...8.00)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 7.30...9.30
1000S.: (5.80...10.80)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³: - 4.0...10.0"
difference 1000S.: - (3.0..11.0)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³: MAX.
difference 1000S.: 0.00...3.00'
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 0.6...0.8 "
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : - 1.8..2.2 '
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump pressure : - 1.1..1.50
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 27.00...29.00
1000S.: (25.00...31.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 35.00...75.00
1000S.: (35.00...75.00)
2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 30.00...50.00
1000S.: (30.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 35.00...65.00
1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.1...5.5
MS	mm: 1.1...1.5
Ya	mm: 37.6...41.6
Yb	mm: 50.4...62.3

Remarks:

:
Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 26.02.93
 Replaces : 01.93
 Test oil : ISO-4113

Combination no. : 0 400 866 179

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV550...1100AOC2238
 -2R
 Governer no. : 0 420 233 296

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-830

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.3...12.5

100 s: (12.1...12.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 550.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension:

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 123.0...125.0

1000 : (121.0...127.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 11.70
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1225...1235
3rd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 550
Rack travel in mm : 5.60...5.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 340
Rack travel in m: 11.20...11.30
3rd pressure hPa : 465
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 82.5...84.5
1000 s: (80.5...85.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3923479

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 1
 Edition : 26.02.93
 Replaces : 02.91
 Test oil : ISO-4113

Combination no. : 0 400 876 350

Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2234
 Governer no. : 0 420 232 498

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW04

1st version kW : 122.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D19

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 10.0...10.2

100 s: (9.6...10.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 100.5...102.5

1000 : (96.5...102.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 125.0...128.0
1000 s: (122.5...130.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE29182
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 2
 Edition : 26.02.93
 Replaces : 02.91
 Test oil : ISO-4113

Combination no. : 0 400 876 351

Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2234
 Governor no. : 0 420 232 499

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 TRW01

1st version kW : 106.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D21

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm³/

100 s: (8.5...9.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 89.0...91.0

1000 : (85.0...91.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.90...6.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 110.5...113.5
1000 s: (108.0...116.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : JOHN DEERE # RE29303
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 4
 Edition : 26.02.93
 Replaces : 02.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 354
 Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2235
 Governer no. : 0 420 232 511
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6076TRW06
 1st version kW : 98.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 8.3...8.5

100 s: (7.9...8.5)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 83.5...85.5

1000 : (79.5...85.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 8.00

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

: JOHN DEERE # RE36069

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 103.0...106.0
1000 s: (100.5...108.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 05.92
 Test oil : ISO-4113
 Combination no. : 0 400 876 381
 Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1050ADC2252
 Governor no. : 0 420 232 571
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6076TRW-30
 1st version kW : 131.5
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11.30...11.40
 Del.quantity cm³/ : 10.9...11.1
 : 100 s: (10.5...11.1)

Spread cm³ : 0.4
 : 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.5...5.7
 Del.quantity cm³/ : 2.1...2.5
 : 100 s: (1.9...2.7)

Spread cm³ : 0.6
 : 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 109.0...111.0
 : 1000 : (105.0...111.0)
 Spread cm³ : 4.00
 : 1000 : (6.50)

RATED SPEED

1st version
 Control lever position degrees: 42...50

Testing:

1st rack travel in: 10.30
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1175
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.50...5.70

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.30...11.40
2nd speed rpm : 750
Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ 1000 s: 134.5...138.5
1000 s: (132.5...140.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ 1000 s: 21.5...25.5
1000 s: (19.5...27.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE41833
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 d 7
 Edition : 26.02.93
 Replaces : 03.92
 Test oil : ISO-4113

Combination no. : 0 400 876 391

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100A2C2225
 -5L
 Governer no. : 0 420 232 566

Customer-spec. information

Customer : JOHN DEERE

Engine : 6076ARW-09

1st version kW : 145.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.4...11.6

100 s: (11.0...11.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 114.0...116.0

1000 : (110.0...116.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:
 1st rack travel in: 10.90
 Speed rpm : 1140...1150
 2nd rack travel in: 4.00
 Speed rpm : 1205...1215
 3rd rack travel in: 4.00
 Speed rpm : 1195...1225
 4th rack travel in: 1300
 Speed rpm : 0.30...1.40

LOW IDLE 1
 Control lever
 position degrees: 15...23
 Setting point w/out bumper spring
 Speed rpm : 425
 Rack travel in mm : 5.3

Testing:
 Speed rpm : 100
 Minimum rack trave: 19.00
 Speed rpm : 425
 Rack travel in mm : 5.70...5.90

TORQUE CONTROL
 Torque control curve - 1st version
 1st speed rpm : 1100
 Rack travel in m: 11.90...12.00
 2nd speed rpm : 750
 Rack travel in m: 13.90...14.10

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 500
 Pressure hPa : 900
 Rack travel mm : 13.90...14.10

Measurement
 Speed 1/min : 500

1st pressure hPa : -
 Rack travel in m: 11.70...11.90
 2nd pressure hPa : 535
 Rack travel in m: 12.30...12.40
 3rd pressure hPa : 720
 Rack travel in m: 13.40...13.80

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 900
 Speed rpm : 750
 Del.quantity cm³/ 1000 s: 143.5...147.5
 1000 s: (141.5...149.5)
 Aneroid pressure h: -
 Speed rpm : 500

Del.quantity cm³/ 1000 s: 129.0...133.0
 1000 s: (127.0...135.0)

BREAKAWAY
 1st version
 1mm rack travel less than
 full load rack tr: 10.90
 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ 1000 s: 100.0...120.0
 1000 s: (95.0...125.0)

LOW IDLE
 Speed rpm : 425
 Rack travel in mm : 5.70...5.90
 Del.quantity cm³/ 1000 s: 26.0...30.0
 Spread cm³ : 6.00
 1000 s: (8.00)

Remarks: : JOHN DEERE # RE47502
 Start-of-delivery mark = 13,5° after start of delivery cyl. 1.
 Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.
 Starting/full-load transition speed from holding magnet = 450 1/min.

APPLICATION
 Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 W 6
 Edition : 26.02.93

Replaces : 05.92
 Test oil : ISO-4113

Combination no. : 0 400 876 394

Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100ACC2234
 -2L
 Governer no. : 0 420 232 569

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW04

1st version kW : 122.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E01

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 10.0...10.2

100 s: (9.6...10.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 100.5...102.5

1000 : (96.5...102.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60	Spread cm ³ : 6.00
Speed rpm : 1145...1155	1000 s: (8.00)
2nd rack travel in: 4.00	
Speed rpm : 1200...1210	
3rd rack travel in: 4.00	Remarks:
Speed rpm : 1190...1220	: JOHN DEERE # RE51026
4th rack travel in: 1300	Start-of-delivery mark = 13,5° after
Speed rpm : 0.30...1.40	start of delivery cyl. 1.
LOW IDLE 1	
Control lever	Adjustment without torque-control
position degrees: 17...25	spring retainer with 0,5 mm less
Setting point w/out bumper spring	control-rod travel. Increase in
Speed rpm : 425	full-load delivery with torque-control
Rack travel in mm : 5.1	spring retainer.
Testing:	
Speed rpm : 100	
Minimum rack trave: 19.00	
Speed rpm : 425	
Rack travel in mm : 5.50...5.70	
TORQUE CONTROL	
Torque control curve - 1st version	
1st speed rpm : 1100	
Rack travel in m: 10.60...10.70	
2nd speed rpm : 700	
Rack travel in m: 11.80...12.20	
FUEL DELIVERY CHARACTERISTICS	
1st version	
Speed rpm : 700	
Del.quantity cm ³ / : 125.0...128.0	
1000 s: (122.5...130.5)	
BREAKAWAY	
1st version	
1mm rack travel less than	
full load rack tr: 9.60	
Speed rpm : 1145...1155	
STARTING FUEL DELIVERY	
Speed rpm : 100	
Del.quantity cm ³ / : 100.0...120.0	
1000 s: (95.0...125.0)	
LOW IDLE	
Speed rpm : 425	
Rack travel in mm : 5.50...5.70	
Del.quantity cm ³ / : 26.0...30.0	
1000 s: (24.0...32.0)	

E02

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 08.03.93
 Replaces : 09.92
 Test oil : ISO-4113

Combination no. : 0 400 876 396

Injection pump
 Pump designation : PES6A95D320RS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RSV350...1250A5C2258
 R
 Governer no. : 0 420 233 292

Customer-spec. information
 Customer : NAVISTAR

Engine : DT 466

1st version kW : 142.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E03

Prestroke mm : 2.45...2.55
 : (2.40...2.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.1...1.5

100 s: (0.9...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 900

Del.quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:
 1st rack travel in: 12.40
 Speed rpm : 1290...1300
 2nd rack travel in: 4.00
 Speed rpm : 1355...1365
 3rd rack travel in: 4.00
 Speed rpm : 1360...1370
 4th rack travel in: 1450
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever position degrees: 19...27
 Setting point w/out bumper spring
 Speed rpm : 350
 Rack travel in mm : 5.7

Testing:
 Speed rpm : 100
 Minimum rack trave: 19.00
 Speed rpm : 350
 Rack travel in mm : 5.60...5.80

CONSTANT REGULATION
 Speed rpm : 350...500

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 500
 Pressure hPa : 900
 Rack travel mm : 13.40...13.50

Measurement
 Speed 1/min : 500

1st pressure hPa : -
 Rack travel in m: 9.40...9.60
 2nd pressure hPa : 250
 Rack travel in m: 10.50...10.60
 3rd pressure hPa : 465
 Rack travel in m: 12.10...12.50

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ 1000 s: 66.0...70.0
 1000 s: (64.0...72.0)

BREAKAWAY
 1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 400 876 398
 Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100AOC2235
 -2L
 Governer no. : 0 420 232 576
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6076TRW06
 1st version kW : 98.0
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E05

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 8.3...8.5

100 s: (7.9...8.5)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 2.6...3.0

100 s: (2.3...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 83.5...85.5

1000 : (79.5...85.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 8.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.50...5.70

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 103.0...107.0
1000 s: (101.0...109.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.5...32.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE51909
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 400 876 399
 Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A0C2234
 -3L
 Governer no. : 0 420 232 577
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6076TRW01
 1st version kW : 106.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E07

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 8.9...9.1

100 s: (8.5...9.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.6...3.0

100 s: (2.3...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity 1000 : 89.0...91.0

1000 : (85.0...91.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.39...1.40

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 110.5...114.5
1000 s: (108.5...116.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.5...32.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE51910
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 400 876 400
 Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100A0C2225
 Governer no. : 0 420 232 578
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6076ARW-09
 1st version kW : 145.0
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm	: 2.95...3.05
	: (2.90...3.10)
Rack travel in mm	: 9.00...12.00
Firing order	: 1- 5- 3- 6- 2- 4
Phasing	: 0-60-120-180-240-300
Tolerance + - °	: 0.50 (0.75)
Time to cyl. no.	: 1
BASIC SETTING	
1st speed rpm	: 1100
Rack travel in mm	: 11.90...12.00
Del.quantity cm ³ /	: 11.4...11.6
100 s:	(11.0...11.6)
Spread cm ³	: 0.4
100 s:	(0.6)
2nd speed rpm	: 425.0
Rack travel in mm	: 5.8...6.0
Del.quantity cm ³ /	: 2.6...3.0
100 s:	(2.3...3.2)
Spread cm ³	: 0.6
100 s:	(0.8)
GUIDE SLEEVE POSITION	
Control-lever position	
Degree:	-3
Speed rpm	: 800
Rack travel in mm	: 0.30...0.70
Governor spring pre-tension	
Click setting x	: 3.00
FULL LOAD DELIV. AT FULL LOAD STOP	
1st version	
Speed rpm	: 1100
Aneroid pressure h:	900
Del.quantity	: 114.0...116.0
1000	: (110.0...116.0)
Spread cm ³	: 4.00
1000	: (6.50)
RATED SPEED	
1st version	
Control lever position	
degrees:	43...51

E09

Testing:
 1st rack travel in: 10.90
 Speed rpm : 1145...1155
 2nd rack travel in: 4.00
 Speed rpm : 1205...1215
 3rd rack travel in: 4.00
 Speed rpm : 1195...1225
 4th rack travel in: 1300
 Speed rpm : 0.30...1.40

LOW IDLE 1
 Control lever
 position degrees: 20...28
 Setting point w/out bumper spring
 Speed rpm : 425
 Rack travel in mm : 5.4

Testing:
 Speed rpm : 100
 Minimum rack travel: 19.00
 Speed rpm : 425
 Rack travel in mm : 5.80...6.00

TORQUE CONTROL
 Torque control curve - 1st version
 1st speed rpm : 1100
 Rack travel in m: 11.90...12.00
 2nd speed rpm : 750
 Rack travel in m: 13.90...14.10

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 500
 Pressure hPa : 900
 Rack travel mm : 13.90...14.10

Measurement
 Speed 1/min : 500

1st pressure hPa : -
 Rack travel in m: 11.80...12.00
 2nd pressure hPa : 500
 Rack travel in m: 12.40...12.50
 3rd pressure hPa : 665
 Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 900
 Speed rpm : 750
 Del.quantity cm³/ 1000 s: 143.5...147.5
 1000 s: (141.5...149.5)
 Aneroid pressure h: -
 Speed rpm : 500

Del.quantity cm³/ 1000 s: 129.0...133.0
 1000 s: (127.0...135.0)

BREAKAWAY
 1st version
 1mm rack travel less than
 full load rack tr: 10.90
 Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ 1000 s: 100.0...120.0
 1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
 Rack travel in mm : 5.80...6.00
 Del.quantity cm³/ 1000 s: 26.0...30.0
 1000 s: (23.5...32.5)
 Spread cm³ : 6.00
 1000 s: (8.00)

Remarks: : JOHN DEERE # RE51911
 Start-of-delivery mark = 13,5° after start of delivery cyl. 1.
 Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

APPLICATION
 Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 400 876 401
 Injection pump
 Pump designation : PES6A100D410RS2762
 EP type number : 0 410 806 003
 Governor
 Governor design. : RSV400...1100A0C2204
 Governor no. : 0 420 232 579
 Customer spec. information
 Customer : JOHN DEERE
 Engine : 6076TT
 1st version kW : 124.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1100
Rack travel in mm : 11.20...11.30		
Del.quantity cm ³ /	: 10.4...10.6	
100 s: (10.0...10.6)		
Spread	cm ³	: 0.4
100 s: (0.6)		

2nd speed	rpm	: 400.0
Rack travel in mm : 6.1...6.3		
Del.quantity cm ³ /	: 3.1...3.5	
100 s: (2.8...3.7)		
Spread	cm ³	: 0.6
100 s: (0.8)		

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-3
Speed	rpm	: 800
Rack travel in mm : 0.30...0.70		

Governor spring pre-tension	Click setting x	: 5.00
-----------------------------	-----------------	--------

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 1100
Del.quantity	1000	: 104.0...106.0
: (100.0...106.0)		
Spread	cm ³	: 4.00
1000 : (6.50)		

RATED SPEED

1st version		
Control lever position	degrees:	47...55

Testing:

1st rack travel in: 10.20
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 6.10...6.30

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 700
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 127.5...131.5
1000 s: (125.5...133.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.10...6.30
Del.quantity cm³/ : 31.0...35.0
1000 s: (28.5...37.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : JOHN DEERE # RE51912
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 400 876 412
 Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV450...1100AOC2252
 -3L
 Governer no. : 0 420 232 592
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6076TDW 30
 1st version kW : 120.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 10.1...10.3

100 s: (9.7...10.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 101.0...103.0

1000 : (97.0...103.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control Lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.20...5.40

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.90...11.00
2nd speed rpm : 500
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ 1000 s: 136.5...140.5
1000 s: (134.5...142.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ 1000 s: 19.0...23.0
1000 s: (16.5...25.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : JOHN DEERE # RE54248
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 415
 Injection pump
 Pump designation : PES6A95N410RS2839
 EP type number : 0 410 896 894
 Governor
 Governor design. : RSV325...1250A5C1164
 Governer no. : 0 420 232 593
 Customer-spec. information
 Customer : KHD
 Engine : BF6L913C
 1st version kW : 164.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 11.6...11.8

100 s: (11.4...12.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GLIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del.quantity : 116.0...118.0

1000 : (114.0...120.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Testing:

1st rack travel in: 11.50

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1315...1345

3rd rack travel in: 4.00
Speed rpm : 1365...1395
4th rack travel in: 1540
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 575...635

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.50...12.60
2nd speed rpm : 500
Rack travel in m: 12.50...12.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.50...12.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 450
Rack travel in m: 11.70...11.80
3rd pressure hPa : 300
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1150
Del.quantity cm3/ : 116.5...119.5
1000 s: (114.0...122.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 17.10...17.30

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces :
 Test oil : ISO-4113

Combination no. : 0 400 876 416

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV400...1100A2C2229
 Governor no. : 0 420 232 594

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 TF 030

1st version kW : 142,0
 2nd version kW : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.6

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 550...610

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 700
Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 151.0...154.0
1000 s: (148.5...156.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE48640
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 08.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 417
 Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100AOC2252
 Governer no. : 0 420 232 595
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6076ARW-32
 1st version kW : 145.0
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 1100
 Rack travel in mm : 11.90...12.00
 Del.quantity cm³/ : 11.4...11.6
 100 s: (11.0...11.6)
 Spread cm³ : 0.4
 100 s: (0.6)
 2nd speed rpm : 425.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 2.6...3.0
 100 s: (2.3...3.2)
 Spread cm³ : 0.6
 100 s: (0.8)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70
 Governor spring pre-tension
 Click setting x : 3.00
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1100
 Del.quantity : 114.0...116.0
 1000 : (110.0...116.0)
 Spread cm³ : 4.00
 1000 : (6.50)
RATED SPEED
 1st version
 Control lever
 position degrees: 43...51
 Testing:

1st rack travel in: 10.90
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 143.5...147.5
1000 s: (141.5...149.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.5...32.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE55711
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 840 772
 Injection pump
 Pump designation : PE12P110A920LS3310
 EP type number : 0 411 810 714
 Governor
 Governor design. : RQV300...1150PA1047
 Governer no. : 0 421 814 030
 Customer-spec. information
 Customer : KHD
 Engine : F 12L513
 1st version kW : 282.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-
 11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-
 180-195-240-255-300-
 315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 10.8...11.0

100 s: (10.5...11.3)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 5.0...5.4
 Del.quantity cm³/ : 1.5...2.1
 100 s: (1.3...2.3)
 Spread cm³ : 0.4
 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 280
travel mm		: 1.40...1.90
2nd speed	rpm	: 330
travel mm		: 2.20...2.70
3rd speed	rpm	: 500
travel mm		: 3.70...4.20
4th speed	rpm	: 870
travel mm		: 7.40...7.90
5th speed	rpm	: 1210
travel mm		: 10.00...10.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1340
 Rack travel in mm : 7.40...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del.quantity 1000 : 108.0...110.0
 : (105.0...113.0)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Testing:

1st rack travel in: 8.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 71...79

Testing:

Speed rpm : 200
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 300...380

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 95.0...99.0
1000 s: (92.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...165.0
1000 s: (131.0...169.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9,0 j
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 401 846 849

Injection pump
 Pump designation : PE6P120A320RS3196
 EP type number : 0 411 826 763
 Governor
 Governor design. : RQV200...1100PA729-1
 Governer no. : 0 421 813 470

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS9 06

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm³ : 0.5

100 s: (0.8)

2nd speed rpm : 225.0

Rack travel in mm : 4.9...5.3

Del.quantity cm³/ : 2.2...2.6

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 0.50...0.90

2nd speed rpm : 350

travel mm : 2.00...2.60

3rd speed rpm : 650

travel mm : 4.90...5.50

4th speed rpm : 1145

travel mm : 8.30...8.50

5th speed rpm : 1250

travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 133.0...135.0

1000 : (130.0...138.0)

Spread cm³ : 5.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 110...118

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO diaphragm.

Testing:

1st rack travel in: 9.40

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1250...1280

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 60...68

Testing:

Speed rpm : 100

Minimum rack travel: 6.20

Speed rpm : 225

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed rpm : 300...360

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del.quantity cm³/ 1000 s: 145.0...153.0

(143.0...155.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ 1000 s: 330.0...380.0

(-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.90...5.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 401 846 956

Injection pump
 Pump designation : PE6P120A320RS3196
 EP type number : 0 411 826 763
 Governor
 Governor design. : RQV200...1100PA729-4
 Governor no. : 0 421 813 950

Customer-spec. information
 Customer : SCANIA

Engine : DSC9 10

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.30

Overflow
 quantity min. 1/h: 170...0

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 13.2...13.4

100 s: (12.9...13.7)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.3...1.9

100 s: (-)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.70...1.10

2nd speed rpm : 350

travel mm : 2.00...2.60

3rd speed rpm : 650

travel mm : 4.90...5.50

4th speed rpm : 1145

travel mm : 8.30...8.50

5th speed rpm : 1250

travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 132.0...134.0
1000 : (129.0...137.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 9.50
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 56...66

Testing:
Speed rpm : 150
Minimum rack trave: 5.80
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 320...380

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.20
2nd pressure hPa : 350
Rack travel in m: 10.30...10.40
3rd pressure hPa : 320
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm³/ : 128.0...136.0
1000 s: (126.0...138.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 114.0...118.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...130.0
1000 s: (-)
Rack travel in mm : 9.80...10.20

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:
:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 05.03.93
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 401 876 3032

 Injection pump
 Pump designation : PE6P100A320RS384-1Z
 EP type number : 0 411 806 189
 Governor
 Governor design. : RSV250...1100P5A510
 Governer no. : 0 421 833 191

 Cust. part no. : 0397803

 Customer-spec. information
 Customer : DAF

 Engine : DK 1160 M

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

 Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

 Tolerance + - * : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

 Rack travel in mm : 10.30...10.40

 Del.quantity cm³/ : 9.0...9.2
 : 100 s: (8.8...9.4)

Spread cm³ : 0.3
 : 100 s: (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 7.2...7.4
 Del.quantity cm³/ : 1.2...1.6
 : 100 s: (0.9...1.8)

Spread cm³ : 0.3
 : 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Del.quantity : 90.0...92.0
 1000 : (88.0...94.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 91...99

Testing:

1st rack travel in: 9.30
 Speed rpm : 1025...1035
 2nd rack travel in: 4.00
 Speed rpm : 1075...1105
 3rd rack travel in: 4.00
 Speed rpm : 1160...1190
 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.8

Testing:

Speed rpm : 100

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Rack travel in mm : 2.00

Speed rpm : 700...760

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 10.30...10.40

2nd speed rpm : 400

Rack travel in m: 10.50...10.60

3rd speed rpm : 300

Rack travel in m: 10.70...11.20

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

Speed rpm : 1025...1035

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 195.0...235.0

1000 s: (191.0...239.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Del.quantity cm³/ : 12.0...16.0

1000 s: (9.5...18.5)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN
 Edition : 03.12.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 726

Injection pump
 Pump designation : PE6P110A720RS3109
 EP type number : 0 411 816 732
 Governor
 Governor design. : RSV200...900P1/421
 Governer no. : 0 421 833 132

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TD 100 G

1st version kW : 203.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

F01

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.60...12.70

Del.quantity cm³/

100 s: (16.3...17.1)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 250

Rack travel in mm : 4.20...4.40

Del.quantity cm³/ : 1.7...2.1

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 166.0...168.0

1000 : (163.0...171.0)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.60

Speed rpm : 940...955

2nd rack travel in: 4.00

Speed rpm : 970...1000

4th rack travel in: 1140

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 3.80

Speed rpm : 250

Rack travel in mm : 4.20...4.40

Rack travel in mm : 2.00

Speed rpm : 270...330

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 20.00...21.00

Remarks:

:

F02

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 423
 Injection pump
 Pump designation : PES5P120A720LS7175
 -10
 EP type number : 0 412 725 816
 Governor
 Governor design. : RQ300/1050PA774-4
 Governer no. : 0 421 801 453
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM449 LA
 1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 235.0...237.0

1000 : (232.0...240.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.60...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *

4th pressure hPa : 1125
Rack travel in m: 14.10...14.30

5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm³/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm³/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 425
 Injection pump : PES6P120A720LS7181
 Pump designation : -10
 EP type number : 0 412 726 870
 Governor : RQ300/1050PA911-1
 Governor design. : 0 421 801 481
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM447 LA
 1st version kW : 294.0
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 100...120
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.00...5.10
	: (4.95...5.15)
Rack travel in mm	: 9.00...12.00
Firing order	: 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del.quantity cm³/ : 27.4...27.6

100 s: (27.1...27.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 274.0...276.0

1000 : (271.0...279.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 850
Rack travel in m: 15.60...15.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.90...11.10
2nd pressure hPa : 700
Rack travel in m: 14.00...14.10
3rd pressure hPa : 1300
Rack travel in m: 15.40...15.60
4th pressure hPa : 1450
Rack travel in m: 15.90...16.10
5th pressure hPa : -
Rack travel in m: 10.00...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050

Del.quantity cm³/ : 269.0...272.0
1000 s: (266.0...275.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 1600

Speed rpm : 700

Del.quantity cm³/ : 298.0...301.0
1000 s: (295.0...304.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 143.0...145.0
1000 s: (140.0...148.0)

Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 433
 Injection pump
 Pump designation : PES6P120A720LS7176
 -10
 EP type number : 0 412 726 869
 Governor
 Governor design. : RQ300/1050PA911-4
 Governor no. : 9 420 080 318
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM447 A
 1st version kW : 210.0
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.quantity cm³/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 215.5...217.5

1000 : (212.5...220.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1260
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 6.00...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.80
2nd speed rpm : 750
Rack travel in m: 15.00...15.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 550
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1050
Rack travel in m: 14.70...14.80
4th pressure hPa : -
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 192.5...196.5
1000 s: (189.5...199.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 220.0...223.0
1000 s: (217.0...226.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 453
 Injection pump
 Pump designation : PES5P120A720LS7174
 -10
 EP type number : 0 412 725 815
 Governor
 Governor design. : RQV300...1050PA979
 Governor no. : 9 420 080 298
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM449 A
 1st version kW : 184.0
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test Lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	: (5.15...5.35)
Rack travel in mm	: 9.00...12.00
Firing order	: 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed	rpm	: 600
-----------	-----	-------

Rack travel in mm	: 14.10...14.30
-------------------	-----------------

Del.quantity cm ³ /	: 19.6...19.8
--------------------------------	---------------

100 s:	(19.3...20.1)
--------	---------------

Spread	cm ³	: 0.5
--------	-----------------	-------

100 s:	(0.9)
--------	-------

2nd speed	rpm	: 300.0
-----------	-----	---------

Rack travel in mm	: 6.7...6.9
-------------------	-------------

Del.quantity cm ³ /	: 1.5...2.1
--------------------------------	-------------

100 s:	(1.2...2.4)
--------	-------------

Spread	cm ³	: 0.8
--------	-----------------	-------

100 s:	(1.2)
--------	-------

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1050
-----------	-----	--------

travel mm	: 7.40...7.50
-----------	---------------

2nd speed	rpm	: 750
-----------	-----	-------

travel mm	: 4.80...5.20
-----------	---------------

3rd speed	rpm	: 500
-----------	-----	-------

travel mm	: 2.70...3.10
-----------	---------------

4th speed	rpm	: 300
-----------	-----	-------

travel mm	: 1.10...1.50
-----------	---------------

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed	rpm	: 1140
-------	-----	--------

Rack travel in mm	: 15.20...17.80
-------------------	-----------------

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 650
 Del.quantity : 196.0...198.0
 1000 : (193.0...201.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 112...120

Testing:
 1st rack travel in: 14.10
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1230...1260
 4th rack travel in: 1350
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 66...74

Testing:
 Speed rpm : 100
 Minimum rack trave: 8.50
 Speed rpm : 300
 Rack travel in mm : 6.70...6.90

CONSTANT REGULATION
 Speed rpm : 300...370

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 650
 Rack travel mm : 14.10...14.30

Measurement
 Speed 1/min : 600

1st pressure hPa : 250
 Rack travel in m: 12.20...12.40
 2nd pressure hPa : 400
 Rack travel in m: 13.50...13.70
 3rd pressure hPa : 750
 Rack travel in m: 14.20...14.30 *
 4th pressure hPa : 850
 Rack travel in m: 14.60...14.80
 5th pressure hPa : -
 Rack travel in m: 11.80...12.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm³/ 1000 s: 217.5...220.5
 1000 s: (214.5...223.5)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1200
 Speed rpm : 750
 Del.quantity cm³/ 1000 s: 218.0...222.0
 1000 s: (215.0...225.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ 1000 s: 148.0...150.0
 1000 s: (145.0...153.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than

full load rack tr: 14.10
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ 1000 s: 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL
 Edition : 21.01.93
 Replaces : 11.92
 Test oil : ISO-4113
 Combination no. : 9 400 087 458
 Injection pump
 Pump designation : PE6P120A320RS3186
 EP type number : 0 411 826 755
 Governor
 Governor design. : RQV250...1025PA657
 -29
 Governor no. : 9 420 080 312
 Customer-spec. information
 Customer : VOLVO
 Engine : TD102FS
 1st version kW : 250.0
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 21.0...21.2

100 s: (20.7...21.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.9...4.1

Del.quantity cm³/ : 1.6...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
travel mm		: 1.10...1.30
2nd speed	rpm	: 500
travel mm		: 4.10...4.90
3rd speed	rpm	: 700
travel mm		: 6.30...6.70
4th speed	rpm	: 900
travel mm		: 6.30...6.70
5th speed	rpm	: 1025
travel mm		: 7.30...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 210.0...212.0
1000 : (207.0...215.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.10
Speed rpm : 1085...1095
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 61...69

Testing:
Speed rpm : 100
Minimum rack trave: 5.40
Speed rpm : 250
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...9.00
2nd pressure hPa : 75
Rack travel in m: 8.90...9.00
3rd pressure hPa : 425
Rack travel in m: 14.80...15.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...290.0
1000 s: (246.0...294.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.90...4.10
Del.quantity cm³/ : 16.0...21.0
1000 s: (13.5...23.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 459

Injection pump
 Pump designation : PES6P120A720LS7181
 -10
 EP type number : 0 412 726 870
 Governor
 Governor design. : RQ300/1050PA911-2
 Governor no. : 9 420 080 313

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 298.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.30...15.50

Del.quantity cm³/ : 27.9...28.1

100 s: (27.6...28.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 279.0...281.0

1000 : (276.0...284.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.90...15.10
2nd speed rpm : 700
Rack travel in m: 16.10...16.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 15.30...15.50

Measurement

Speed 1/min : 600

1st pressure hPa : 360
Rack travel in m: 10.70...10.90
2nd pressure hPa : 740
Rack travel in m: 13.90...14.10
3rd pressure hPa : 1340
Rack travel in m: 15.50...15.70
4th pressure hPa : 1440
Rack travel in m: 15.80...15.90
5th pressure hPa : -
Rack travel in m: 9.20...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 263.0...266.0
1000 s: (260.0...269.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 1600
Speed rpm : 700
Del.quantity cm³/ 1000 s: 297.0...300.0
1000 s: (294.0...303.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 124.0...126.0
1000 s: (121.0...129.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 265.0...285.0
1000 s: (261.0...289.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces test oil : ISO-4113
 Combination no. : 9 400 087 460
 Injection pump
 Pump designation : PES6P120A720LS7114
 -13
 EP type number : 0 412 726 867
 Governor
 Governor design. : RQ300/1050PA911-3
 Governer no. : 9 420 080 314
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM447 LA
 1st version kw : 260.0
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 100...120
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.40...13.60

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.20
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.10...13.30
2nd speed rpm : 800
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 600

1st pressure hPa : 240
Rack travel in m: 10.50...10.70
2nd pressure hPa : 560
Rack travel in m: 12.50...12.70
3rd pressure hPa : 920
Rack travel in m: 13.60...13.70
4th pressure hPa : 980
Rack travel in m: 13.80...13.90
5th pressure hPa : -
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 213.0...217.0
(210.0...220.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ 1000 s: 237.5...240.5
(234.5...243.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 130.0...132.0
(127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 220.0...240.0
(216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 461
 Injection pump
 Pump designation : PES5P120A720LS7174
 EP type number : 10
 Governor : 0 412 725 815
 Governor design. : RQ300/1050PA774-6
 Governor no. : 9 420 080 315
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM449 A
 1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm³/ : 19.3...19.5

100 s: (19.0...19.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...7.0

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del.quantity : 193.5...195.5

1000 : (190.5...198.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack trave: 10.00
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 390...430

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 11.60...11.80
2nd pressure hPa : 520
Rack travel in m: 13.00...13.20
3rd pressure hPa : 960
Rack travel in m: 14.10...14.20
4th pressure hPa : 1040
Rack travel in m: 14.30...14.40
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 208.5...211.5
1000 s: (205.5...214.5)

Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm³/ 1000 s: 209.0...213.0
1000 s: (206.0...216.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 197.0...217.0
1000 s: (193.0...221.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 462
 Injection pump
 Pump designation : PES5P120A720LS7175
 -10
 EP type number : 0 412 725 816
 Governor
 Governor design. : RQ300/1050PA774-7
 Governor no. : 9 420 080 316
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM449 LA
 1st version kW : 220.0
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	(5.15...5.35)
Rack travel in mm	: 9.00...12.00
Firing order	: 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/

100 s: (23.0...23.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.9

Del.quantity cm³/

100 s: (0.8...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 850

Del.quantity : 233.5...235.5

1000 : (230.5...238.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.70...13.90
2nd speed rpm : 750
Rack travel in m: 14.50...14.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 850
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 10.30...10.40
2nd pressure hPa : 600
Rack travel in m: 12.40...12.60
3rd pressure hPa : 1160
Rack travel in m: 13.80...13.90
4th pressure hPa : 1240
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 9.30...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

F20

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm3/ 1000 s: 231.0...234.0
Spread cm3 : 8.00
1000 s: (228.0...237.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm3/ 1000 s: 251.0...255.0
Spread cm3 : 8.00
1000 s: (248.0...258.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ 1000 s: 125.0...127.0
Spread cm3 : 8.00
1000 s: (122.0...130.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ 1000 s: 222.0...242.0
1000 s: (218.0...246.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 464
 Injection pump
 Pump designation : PES6P120A720LS7257
 EP type number : 9 400 087 086
 Governor
 Governor design. : RQV300...1050PA1029
 Governer no. : 9 420 080 325
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM 447 LA
 1st version kW : 257.6
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00...0.00
 Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed	rpm	: 700
Rack travel in mm : 13.60...13.80		
Del.quantity cm ³ /	: 25.8...26.0	
100 s: (25.5...26.3)		
Spread	cm ³	: 0.5
100 s: (0.9)		

2nd speed	rpm	: 300.0
Rack travel in mm	: 5.1...5.4	
Del.quantity cm ³ /	: 1.4...2.0	
100 s: (1.1...2.3)		
Spread	cm ³	: 0.8
100 s: (1.2)		

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1050
travel mm	: 7.70...7.90	
2nd speed	rpm	: 300
travel mm	: 0.50...1.00	
3rd speed	rpm	: 500
travel mm	: 3.00...3.50	
4th speed	rpm	: 700
travel mm	: 5.20...5.70	
5th speed	rpm	: 1165
travel mm	: 9.20...9.70	

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-1
Speed	rpm	: 1120
Rack travel in mm : 15.20...17.80		

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700

Aneroid pressure h: 1000
Del.quantity : 258.0...260.0
1000 : (255.0...263.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.40...13.60
2nd speed rpm : 700
Rack travel in m: 13.60...13.80
3rd speed rpm : 850
Rack travel in m: 13.60...13.80
4th speed rpm : 950
Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.60...13.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.10

2nd pressure hPa : 250
Rack travel in m: 10.20...10.40
3rd pressure hPa : 700
Rack travel in m: 13.10...13.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ : 244.5...247.5
1000 s: (241.5...250.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 124.0...126.0
1000 s: (121.0...129.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 466

Injection pump
 Pump designation : PES6P120A720LS7257
 -10
 EP type number : 9 400 087 086
 Governor
 Governor design. : RQV300...1050PA1024
 -2
 Governor no. : 9 420 080 327

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 447 LA

1st version kW : 301.8
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

F23

Test pressure, bar: 25...27

Prestroke mm	: 4.60...4.70
	: (4.55...4.75)
Rack travel in mm	: 21.00...0.00
Firing order	: 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.00...15.20

Del.quantity cm³/

100 s: (31.0...31.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.1...5.4

Del.quantity cm³/

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050

travel mm : 7.30...7.50

2nd speed rpm : 300

travel mm : 0.50...1.00

3rd speed rpm : 500

travel mm : 3.10...3.60

4th speed rpm : 700

travel mm : 4.80...5.30

5th speed rpm : 1200

travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
Aneroid pressure h: 1500
Del.quantity : 313.5...315.5
1000 : (310.5...318.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 14.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack trav: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 275...425

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 15.00...15.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...11.00
2nd pressure hPa : 250
Rack travel in m: 11.10...11.30
3rd pressure hPa : 800
Rack travel in m: 14.00...14.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm³/ : 301.5...304.5
1000 s: (298.5...307.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 297.0...317.0
1000 s: (293.0...321.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 467
 Injection pump
 Pump designation : PES5P120A720LS7174
 -10
 EP type number : 0 412 725 815
 Governor
 Governor design. : RQ300/1050PA774-8
 Governor no. : 9 420 080 328
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM 449 A
 1st version kW : 170.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.90...14.10

Del.quantity cm³/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...7.0

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 800

Del.quantity : 197.5...199.5

1000 : (194.5...202.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 395...435

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.90...11.20
2nd pressure hPa : 270
Rack travel in m: 11.80...11.90
3rd pressure hPa : 450
Rack travel in m: 13.10...13.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 1050
Del.quantity cm3/ : 193.0...196.0
1000 s: (190.0...199.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 468
 Injection pump
 Pump designation : PES5P120A720LS7174
 EP type number : 0 412 725 815
 Governor
 Governor design. : RQV300...1050PA1041
 Governor no. : 9 420 080 329
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM449 A
 1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed	rpm	: 600
Rack travel in mm : 13.90...14.10		
Del.quantity cm ³ /	: 19.3...19.5	
	100 s:	(19.0...19.8)
Spread	cm ³	: 0.5
	100 s:	(0.9)

2nd speed	rpm	: 300.0
Rack travel in mm : 6.6...7.0		
Del.quantity cm ³ /	: 1.7...2.3	
	100 s:	(1.4...2.6)
Spread	cm ³	: 0.8
	100 s:	(1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm	: 1.20...1.60	
2nd speed	rpm	: 500
travel mm	: 3.00...3.50	
3rd speed	rpm	: 900
travel mm	: 5.60...6.10	
4th speed	rpm	: 1100
travel mm	: 7.40...7.90	
5th speed	rpm	: 1210
travel mm	: 9.30...9.80	

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-1
Speed	rpm	: 1140
Rack travel in mm : 15.20...17.80		

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	Speed	rpm	: 600
-------------	-------	-----	-------

Aneroid pressure h: 700
 Del.quantity : 193.5...195.5
 1000 : (190.5...198.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 111...119

Testing:

1st rack travel in: 13.70
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1180...1210
 4th rack travel in: 1300
 Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
 position degrees: 66...74

Testing:

Speed rpm : 100
 Minimum rack trave: 8.50
 Speed rpm : 300
 Rack travel in mm : 6.70...6.90

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 700
 Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 340
 Rack travel in m: 11.60...11.80
 2nd pressure hPa : 520
 Rack travel in m: 13.00...13.20
 3rd pressure hPa : 960
 Rack travel in m: 14.10...14.20
 4th pressure hPa : 1040
 Rack travel in m: 14.30...14.40
 5th pressure hPa : -
 Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1300
 Speed rpm : 1050
 Del.quantity cm³/s : 208.5...211.5
 1000 s: (205.5...214.5)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1300
 Speed rpm : 750
 Del.quantity cm³/s : 209.0...213.0
 1000 s: (206.0...216.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/s : 131.0...133.0
 1000 s: (128.0...136.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than

full load rack tr: 13.70
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/s : 197.0...217.0
 1000 s: (193.0...221.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 05.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 472
 Injection pump
 Pump designation : PES6P120A720LS7114-3
 EP type number : 0 412 726 820
 Governor
 Governor design. : RQV300...1050PA1041
 Governor no. : 9 420 080 335
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM447 LA
 1st version kW : 257.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.40...13.60

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.20...1.60
2nd speed	rpm	: 500
travel mm		: 3.00...3.50
3rd speed	rpm	: 900
travel mm		: 5.60...6.10
4th speed	rpm	: 1100
travel mm		: 7.40...7.90
5th speed	rpm	: 1210
travel mm		: 9.30...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600

Aneroid pressure h: 780
Del.quantity : 225.0...227.0
1000 : (222.0...230.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...71

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 325...500

TORQUE CONTROL
Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.10...13.30
2nd speed rpm : 800
Rack travel in m: 14.00...14.20
3rd speed rpm : 930
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 780
Rack travel mm : 13.40...13.60

Measurement
Speed 1/min : 600

1st pressure hPa : 240
Rack travel in m: 10.50...10.70
2nd pressure hPa : 560
Rack travel in m: 12.50...12.70

3rd pressure hPa : 920
Rack travel in m: 13.60...13.70
4th pressure hPa : 980
Rack travel in m: 13.80...13.90
5th pressure hPa : -
Rack travel in m: 9.60...9.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm³/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ : 237.5...240.5
1000 s: (234.5...243.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 475

Injection pump
 Pump designation : PES5P120A720LS7280
 EP type number : 9 400 087 087
 Governor
 Governor design. : RQV300...1050PA1029
 Governer no. : 9 420 080 341

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 449 LA

1st version kW : 220.8
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

G03

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.40

Del.quantity cm³/

100 s: (23.9...24.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.0...5.3
 Del.quantity cm³/

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1050
travel mm		: 7.70...7.90
2nd speed	rpm	: 300
travel mm		: 0.50...1.00
3rd speed	rpm	: 500
travel mm		: 3.00...3.50
4th speed	rpm	: 700
travel mm		: 5.20...5.70
5th speed	rpm	: 1165
travel mm		: 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1300
Del.quantity : 242.0...244.0
1000 : (239.0...247.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 250...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 13.20...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.80
2nd pressure hPa : 520
Rack travel in m: 10.30...10.50
3rd pressure hPa : 800
Rack travel in m: 12.00...12.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm³/s : 238.0...241.0
1000 s: (235.0...244.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/s : 116.5...119.5
1000 s: (113.5...122.5)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/s : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 476
 Injection pump
 Pump designation : PES6P120A720LS7181
 EP type number : 0 412 726 870
 Governor
 Governor design. : RQV300...1050PA1055
 Governor no. : 9 420 080 337
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM447LA
 1st version kW : 301.8
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

G05

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed	rpm	: 1050
Rack travel in mm : 15.00...15.10		
Del.quantity cm ³ /	cm ³	: 26.5...26.7
100 s: (26.2...27.0)		
Spread	cm ³	: 0.5
100 s: (0.9)		

2nd speed	rpm	: 300.0
Rack travel in mm : 5.9...6.1		
Del.quantity cm ³ /	cm ³	: 1.1...1.7
100 s: (0.8...2.0)		
Spread	cm ³	: 0.8
100 s: (1.2)		

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.20...1.60
2nd speed	rpm	: 500
travel mm		: 3.00...3.50
3rd speed	rpm	: 900
travel mm		: 5.60...6.10
4th speed	rpm	: 1100
travel mm		: 7.40...7.90
5th speed	rpm	: 1210
travel mm		: 9.30...9.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Aneroid pressure h: 1200
Del.quantity : 265.0...267.0
1000 : (262.0...270.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 14.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 325...475

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.90...10.20
2nd pressure hPa : 500
Rack travel in m: 11.10...11.30
3rd pressure hPa : 820
Rack travel in m: 13.60...13.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/s : 267.5...270.5
1000 s: (264.5...273.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/s : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/s : 250.0...270.0
1000 s: (246.0...274.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm³/s : 11.0...17.0
1000 s: (8.0...20.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

1st version
Speed rpm : 1000
Del.quantity 1000 : 17.0...20.0
1000 cm³ : (14.0...23.0)
Spread 1000 cm³ : 2.00
1000 s : (3.00)

RATED SPEED

1st version
Control lever position degrees: 106...114

Testing:

1st rack travel in: 9.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever position degrees: 73...81

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 10.70...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.10
2nd pressure hPa : 350
Rack travel in m: 10.10...10.30
3rd pressure hPa : 420
Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm³/ 1000 s : 140.0...142.0
1000 s : (137.0...145.0)
Spread cm³ : 8.00
1000 s : (12.0)
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ 1000 s : 115.0...119.0
1000 s : (112.0...122.0)
Spread cm³ : 8.00
1000 s : (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s : 63.0...65.0
1000 s : (60.0...68.0)
Spread cm³ : 8.00
1000 s : (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s : 90.0...110.0
1000 s : (86.0...114.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.20...7.50
Del.quantity cm³/ 1000 s : 10.0...16.0
1000 s : (7.0...19.0)
Spread cm³ : 8.00
1000 s : (12.00)

Remarks:

:
Start-of-delivery blocking at 4.05 mm
after cyl. 1 start-of-delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 479

Injection pump
 Pump designation : PES6P120A720LS7257
 -10
 EP type number : 9 400 087 086
 Governor
 Governor design. : RQV300...1050PA1029
 -4
 Governor no. : 9 420 080 340

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 447 LA

1st version kW : 257.6
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

G09

Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00...0.00
 Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 24.6...24.8
 100 s: (24.3...25.1)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.3...5.6
 Del.quantity cm³/ : 1.1...1.7
 100 s: (0.8...2.0)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 1050
 travel mm : 7.70...7.90
 2nd speed rpm : 300
 travel mm : 0.50...1.00
 3rd speed rpm : 500
 travel mm : 3.00...3.50
 4th speed rpm : 700
 travel mm : 5.20...5.70
 5th speed rpm : 1165
 travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
Aneroid pressure h: 1000
Del.quantity : 246.5...248.5
1000 : (243.5...251.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 275...425

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.60...13.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...10.00
2nd pressure hPa : 320
Rack travel in m: 10.50...10.70
3rd pressure hPa : 700
Rack travel in m: 12.70...13.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 245.5...248.5
cm³ : (242.5...251.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 113.0...115.0
cm³ : (110.0...118.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 225.0...245.0
cm³ : (221.0...249.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 h 1
 Edition : 02.04.93
 Replaces : 12.10.92
 Test oil : ISO-4113

Combination no. : 9 400 230 058

Injection pump
 Pump designation : PES6A95D320LS2647
 Governor
 Governor design. : RSV400...1100A2B2172
 R

Customer-spec. information

Customer : CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.60...9.70

Del.quantity cm³/ : 10.4...10.6

100 s: (10.2...10.8)

Spread cm³ : 0.35

100 s: (0.60)

2nd speed rpm : 400

Rack travel in mm : 4.80...5.00

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.35

100 s: (0.55)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 104.5...106.5

1000 : (102.5...108.5)

Spread cm³ : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.60

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.40

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 525...585

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.25...10.35
3rd speed rpm : 600
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 111.5...115.5
1000 s: (109.5...117.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.00...150.00
1000 s: (137.0...153.0)

Remarks: : CASE # A-182102
Start-of-delivery mark is at start of
delivery of cylinder 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8.3 a35
 Edition : 1.4.93
 Replaces : 17.05.90
 Test oil : ISO-4113
 Combination no. : 9 400 230 089CP
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1000AOC2190
 Cust. part no. : 3915949
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3
 1st version kW : 171.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test Lines : 1 680 750 014

Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 13.1...13.3

100 s: (12.9...13.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 131.0...133.0

1000 : (129.0...135.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 12.20
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1130...1160
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 12.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11.0 x4
 Edition : 26.02.93
 Replaces : 3.83
 Test oil : ISO-4113

Combination no. : 9 400 231 156

Injection pump
 Pump designation : PES6P110A720RS6006
 EP type number : 9 410 231 008
 Governor
 Governor design. : RQV300/600...1050PA
 621-3K
 Governor no. : 9 420 232 059

Customer-spec. information
 Customer : MACK TRUCKS INC.

Engine : EME 6-300

1st version kW : 223.7
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 17...19

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 10.50
 Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.00

Del.quantity cm³/ : 21.3...21.5

100 s: (21.1...21.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.7...2.7

100 s: (1.5...2.9)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.80...1.20

2nd speed rpm : 300

travel mm : 1.80...2.20

3rd speed rpm : 720

travel mm : 4.30...4.70

4th speed rpm : 1200

travel mm : 8.90...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 212.5...214.5

: (210.5...216.5)

Spread cm³ : 4.50

: (7.50)

RATED SPEED

1st version
Control lever
position degrees: 60...66

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1255
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 17...23

Testing:

Speed rpm : 250
Minimum rack trav: 9.80
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 710...770

CONSTANT REGULATION

Speed rpm : 380...600

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.00...14.00
2nd speed rpm : 850
Rack travel in m: 14.15...14.25
3rd speed rpm : 750
Rack travel in m: 14.65...14.75
4th speed rpm : 630
Rack travel in m: 15.20...15.30
5th speed rpm : 500
Rack travel in m: 14.60...14.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 850
Del.quantity cm³/ : 210.0...213.0
1000 s: (208.0...215.0)
Spread cm³ : 6.50
1000 s: (10.0)
Speed rpm : 630
Del.quantity cm³/ : 235.0...238.0
1000 s: (233.0...240.0)
Spread cm³ : 6.50
1000 s: (10.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...170.0
1000 s: (100.0...180.0)
Rack travel in mm : 12.70...12.90

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 17.0...27.0
1000 s: (-)
Spread cm³ : 5.50
1000 s: (8.00)

Remarks: : MACK #313 GC 5151 P9

See VDT-I-MAC 002

PLE dimension = 0.740" - 0.820"

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 02.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 231 157
 Injection pump
 Pump designation : PES6P110A720RS6006
 EP type number : 9 410 231 008
 Governor
 Governor design. : RQV300/600...1050PA
 621-3K
 Governor no. : 9 420 232 059
 Customer-spec. information
 Customer : MACK TRUCKS INC.
 Engine : EME 6-300
 1st version kW : 223.7
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness
 x Length mm : 6.00x1.50x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 17...19
 Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.00

Del.quantity cm³/ : 21.3...21.5

100 s: (21.1...21.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.7...2.7

100 s: (1.5...2.9)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.80...1.20

2nd speed rpm : 300

travel mm : 1.80...2.20

3rd speed rpm : 720

travel mm : 4.30...4.70

4th speed rpm : 1200

travel mm : 8.90...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 212.5...214.5

1000 : (210.5...216.5)

Spread cm³ : 4.50

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 60...66

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1255
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 17...23

Testing:

Speed rpm : 250
Minimum rack trave: 9.80
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 710...770

CONSTANT REGULATION

Speed rpm : 380...600

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.00...14.00
2nd speed rpm : 850
Rack travel in m: 14.15...14.25
3rd speed rpm : 750
Rack travel in m: 14.65...14.75
4th speed rpm : 630
Rack travel in m: 15.20...15.30
5th speed rpm : 500
Rack travel in m: 14.60...14.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 850
Del.quantity cm³/ 1000 s: 210.0...213.0
1000 s: (208.0...215.0)
Spread cm³ : 6.50
1000 s: (10.0)
Speed rpm : 630
Del.quantity cm³/ 1000 s: 235.0...238.0
1000 s: (233.0...240.0)
Spread cm³ : 6.50
1000 s: (10.0)

BREAKAWAY

1st version

G18

1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 110.0...170.0
1000 s: (100.0...180.0)
Rack travel in mm : 12.70...12.90

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...5.10
Del.quantity cm³/ 1000 s: 17.0...27.0
1000 s: (-)
Spread cm³ : 5.50
1000 s: (8.00)

Remarks: : MACK #313 GC 5151 P9

See VDT-I-MAC 002

PLE dimension = 0.740" - 0.820"

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 5,9 a11
 Edition : 05.03.93
 Replaces : 10.91
 Test oil : ISO-4113
 Combination no. : 9 407 083 279
 Injection pump
 Pump designation : PES6A80D320RS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1400A2C2179
 Governer no. : 9 420 083 281
 Customer-spec. information
 Customer : MMM
 Engine : D229-6
 1st version kW : 100.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference * CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ : 5.8...5.9

100 s: (5.7...6.1)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.1...7.3

Del.quantity cm³/ : 0.9...1.2

100 s: (0.7...1.3)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity 1000 : 58.5...59.5

1000 : (57.0...61.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 101...109

Testing:

1st rack travel in: 9.00
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1650
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 620...680

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.00...10.10
2nd speed rpm : 500
Rack travel in m: 10.70...10.80
3rd speed rpm : 800
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 50.5...52.5
1000 s: (48.5...54.5)
Speed rpm : 800
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.30
Del.quantity cm³/ : 9.0...12.0
1000 s: (7.5...13.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MM 3,9 b 5
 Edition : 05.03.93
 Replaces : 10.91
 Test oil : ISO-4113

Combination no. : 9 407 083 296

Injection pump
 Pump designation : PES4A80D320RS1282
 EP type number : 9 400 083 056
 Governor
 Governor design. : RSV350...1500A2C2122
 -2K
 Governor no. : 9 420 083 286

Customer-spec. information
 Customer : MM

Engine : D 229-4

1st version kW : 64.0
 Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference * CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 6.0...6.1

100 s: (5.8...6.2)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.7...1.0

100 s: (0.6...1.2)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del.quantity : 60.0...61.0

1000 : (58.5...62.5)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 117...125

Testing:

1st rack travel in: 9.20
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1610...1640
4th rack travel in: 1800
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 660...720

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 800
Rack travel in m: 11.00...11.30
4th speed rpm : 1100
Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ 1000 s: 55.0...57.0
1000 s: (53.0...59.0)
Speed rpm : 800
Del.quantity cm³/ 1000 s: 58.5...61.5
1000 s: (56.5...63.5)
Speed rpm : 1100
Del.quantity cm³/ 1000 s: 60.5...62.5
1000 s: (58.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ 1000 s: 7.5...10.5
Spread cm³ : 2.00
1000 s: (6.0...12.0)
1000 s: (3.50)

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 P43
 Edition : 08.04.93
 replaces : 14.04.92
 Calibrating oil : ISO-4113

Injection pump : VE4/12F110CR378-7
 Type number : 0 460 424 074
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 4 BT-390

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.8
 mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

623

Speed 1/min: 900
 Setting value mm: 2.30...2.70
 Shutoff electromagnet Volt: 12
 Supply-pump pressure
 Speed 1/min: 900
 Setting value bar: 4.10...4.70
 Shutoff electromagnet Volt: 12
 Full-load del. w/out charge press.:
 Speed 1/min: 750
 Del. quantity cm³/
 1000S.: 63.50...64.50
 Shutoff electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)
 Low-idle speed regulation
 Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 6.00...12.00
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 5.5
 1000S.: (7.0)
 Full-load speed regulation
 Speed 1/min: 1170
 Del. quantity cm³/
 1000S.: 31.50...38.50
 Shutoff electromagnet Volt: 12
 Start:
 Speed 1/min: 100
 Del. quantity cm³/: 70.00...120.00
 mind 1000S.: 70.00
 Shutoff electromagnet Volt: 12
 Inspection-pump test specifications
 Test specifications in parentheses
 Timing-device characteristic:
 2nd speed 1/min: 1100
 TD travel mm: 3.10...3.90
 mm: (2.80...4.20)
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 900

TD travel	mm: 2.30...2.70 mm: (1.80...3.20)		Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 60.50...63.50 1000s.: (59.00...65.00)
Shutoff electromagnet Volt: 12			6th speed 1/min: 900
4th speed 1/min: 650			Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 60.80...63.80 1000s.: (58.80...65.80)
TD travel mm: 0.70...1.50 mm: (0.40...1.80)			7th speed 1/min: 750
Shutoff electromagnet Volt: 12			Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 63.50...64.50 1000s.: (61.00...67.00)
Supply-pump pressure characteristic:			8th speed 1/min: 500
1st speed 1/min: 500			Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 61.00...69.00 1000s.: (59.00...71.00)
Supply-pump pressure bar: 2.40...3.00			Mech. shutoff: Mech. Abstellung:
Shutoff electromagnet Volt: 12			1st speed 1/min: 1100 Del. quantity cm ³ : 0.00...3.00 1000s.: (0.00...3.00)
2nd speed 1/min: 900			Shutoff electromagnet volt: 12
Supply-pump pressure bar: 4.10...4.70			Electr. shutoff:
Shutoff electromagnet Volt: 12			1st speed 1/min: 500 Del. quantity cm ³ : 0.00...3.00 1000s.: (0.00...3.00)
3rd speed 1/min: 1100			Shutoff electromagnet volt: -
Supply-pump pressure bar: 4.90...5.50			Idle delivery:
Shutoff electromagnet Volt: 12			1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 6.00...12.00 1000s.: (4.00...14.00)
Overflow : 41.70...83.40			Dispersion cm ³ : 5.5 1000s.: (7.0)
quantity cm ³ /10s: (26.70...98.40)			2nd speed 1/min: 570
2nd speed 1/min: 1100			Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 0.00...4.00 1000s.: (0.00...4.00)
Shutoff electromagnet Volt: 12			Automatic starting fuel delivery:
Overflow : 55.60...139.00			1st speed 1/min: 130 Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 70.00...130.00 1000s.: (70.00...130.00)
quantity cm ³ /10s: (40.60...154.00)			
Delivery-quant. and breakaway char.:			
2nd speed 1/min: 1260			
Shutoff electromagnet Volt: 12			
Del. quantity cm ³ : 0.00...3.00			
1000s.: (0.00...3.00)			
3rd speed 1/min: 1190			
Shutoff electromagnet Volt: 12			
Del. quantity cm ³ : 10.00...40.00			
1000s.: (10.00...40.00)			
4th speed 1/min: 1170			
Shutoff electromagnet Volt: 12			
Del. quantity cm ³ : 31.50...38.50			
1000s.: (29.00...41.00)			
5th speed 1/min: 1100			

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 30.00...70.00
1000S.: (30.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 70.00...120.00
1000S.: (70.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: K-OT
MS mm: 1.2...1.6
SVS max. mm: 3.2

Remarks:
: C.D.C. # 391 7528
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1.9 K
 Edition : 08.04.93
 replaces : 05.12.91
 Calibrating oil : ISO 4113

Injection pump : VE4/9F2100R466
 Type number : 0 460 494 304

Customer-specific information
 Customer : FIAT - TIPO / TEMPRA

Engine : M710

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value mm: 6.00...6.40
 AFB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 5.70...6.30
 KSB/AFB

valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 52.00...53.00

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 39.50...40.50

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

11

Low-idle speed regulation

Speed 1/min: 450
 Charge press. hPa: -
 Del. quantity cm³/
 1000S.: 11.00...15.00

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.5
 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 700
 Charge press. hPa: -
 Del. quantity cm³/
 1000S.: 4.00...6.00

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300
 Charge press. hPa: 1000

Del. quantity cm ³ /		Shutoff	
1000S.: 35.00...41.00		electromagnet Volt: 12	
KSB/AFB		3rd speed 1/min: 800	
valve	Volt: 12	Charge press hPa: 1000	
Shutoff		TD travel mm: 1.60...2.40	
electromagnet Volt: 12		mm: (1.30...2.70)	
Start:		KSB/AFB	
Speed	1/min: 100	valve	Volt: 12
Charge press	hPa: -	Shutoff	
Del. quantity cm ³ /	-	electromagnet Volt: 12	
mind	1000S.: 50.0	4th speed 1/min: 1500	
KSB/AFB		Charge press hPa: 1000	
Valve	Volt: 12	TD travel mm: 6.00...6.40	
Shutoff		mm: (5.60...6.80)	
electromagnet Volt: 12		KSB/AFB	
Load-dependent start of delivery:		valve	Volt: 12
Inj.-qty.dif.measurement:		Shutoff	
Speed	1/min: 1500	electromagnet Volt: 12	
Charge press	hPa: -	5th speed 1/min: 2100	
Inj.-qty.	cm ³ /	Charge press. hPa: 1000	
difference	1000S.: 5.00...7.00 #	TD travel mm: 8.60...9.40	
KSB/AFB		mm: (8.30...9.70)	
valve	Volt: 12	KSB/AFB	
Shutoff		valve	Volt: 12
electromagnet Volt: 12		Shutoff	
SP press.-dif.measurement		electromagnet Volt: 12	
pompa di mandata (FP)		1st speed 1/min: 800	
1.Speed	1/min: 1500	Charge press. hPa: 1000	
Charge press	hPa: -	Supply-pump pressure bar: 3.70...4.30	
Supply pump		KSB/AFB	
pressure		valve	Volt: 12
difference	bar: 0.10...0.30 #	Shutoff	
KSB/AFB		electromagnet Volt: 12	
valve	Volt: 12	2nd speed 1/min: 1500	
Shutoff		Charge press. hPa: 1000	
electromagnet Volt: 12		Supply-pump pressure bar: 5.70...6.30	
Inspection-pump test specifications		KSB/AFB	
Test specifications in parentheses		valve	Volt: 12
Timing-device characteristic:		Shutoff	
1st speed	1/min: 500	electromagnet Volt: 12	
Charge press	hPa: 1000	3rd speed 1/min: 2100	
TD travel	mm: 3.90...5.50 A	Charge press. hPa: 1000	
	mm: (3.20...6.20)	Supply-pump pressure bar: 7.30...7.90	
KSB/AFB		KSB/AFB	
valve	Volt: 12	valve	Volt: 12
electromagnet	Volt: 12	Shutoff	
2nd speed	1/min: 1000	electromagnet Volt: 12	
Charge press	hPa: 1000	Overflow quantity at overflow valve:	
TD travel	mm: 3.50...6.50 B	1st speed 1/min: 800	
	mm: -	Charge press. hPa: 1000	
KSB/AFB		KSB/AFB	
valve	Volt: 12	valve	Volt: 12

Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Overflow : 75.00...119.00	Shutoff
quantity cm ³ /10s: (60.00...134.00)	electromagnet Volt: 12
2nd speed 1/min: 2100	Del. quantity cm ³ /: 54.00...57.00
Charge press. hPa: 1000	1000S.: -
KSB/AFB	7th speed 1/min: 800
valve Volt: 12	Charge press. hPa: -
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Overflow : 97.00...180.50	Shutoff
quantity cm ³ /10s: (82.00...195.50)	electromagnet Volt: 12
Delivery-quant. and breakaway char.:	Del. quantity cm ³ /: 38.70...40.70
	1000S.: (37.20...42.20)
	Mech. shutoff:
	Electr. shutoff:
1nd speed 1/min: 800*	1st speed 1/min: 450
Charge-air pressure-setting	Charge press. hPa: -
point hPa: 400	Del. quantity cm ³ /: 0.00...3.00
LDA-stroke mm: 5.2	1000S.: -
KSB/AFB	Shutoff
valve Volt: 12	electromagnet volt: -
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Del. quantity cm ³ /: 48.50...49.50	Damper set qty.:
1000S.: (46.50...51.50)	LFG-setting:
2nd speed 1/min: 2450	solidale con carcassa:
Charge press. hPa: 1000	Idle delivery:
KSB/AFB	1st speed 1/min: 450
valve Volt: 12	KSB/AFB
Shutoff	valve Volt: 12
electromagnet Volt: 12	Shutoff
Del. quantity cm ³ /: 17.00...25.00	electromagnet Volt: 12
1000S.: (16.00...26.00)	Del. quantity cm ³ /: 11.00...15.00
3rd speed 1/min: 2300	1000S.: (9.00...17.00)
Charge press. hPa: 1000	Residual:
KSB/AFB	1. Rotacao 1/min: 700
valve Volt: 12	KSB/AFB
Shutoff	valve Volt: 12
electromagnet Volt: 12	Shutoff
Del. quantity cm ³ /: 35.00...41.00	electromagnet Volt: 12
1000S.: (33.00...43.00)	Del. quantity cm ³ /: 4.00...6.00
4th speed 1/min: 2100	1000S.: (3.00...7.00)
Charge press. hPa: 1000	Load-dependent start of delivery:
KSB/AFB	Inj.-qty.dif.measurement:
valve Volt: 12	1st speed 1/min: 1500
Shutoff	Charge press. hPa: -
electromagnet Volt: 12	Inj.-qty. cm ³ /: 8.0...16.00 "
Del. quantity cm ³ /: 52.00...53.00	difference 1000S.: -
1000S.: (50.50...54.50)	
6th speed 1/min: 800	
Charge press. hPa: 1000	

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: -
TD-travel : 0.80...1.10 "
difference mm: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52.00...78.00
1000S.: -

2nd speed 1/min: 300
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...45.50
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 1.0...1.4
LDA stroke mm: 5.2
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 05.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 795
 Injection pump
 Pump designation : PE6P110A320LS3835-2
 EP type number : 0 411 816 761
 Governor
 Governor design. : RSV350...1000POA827
 Governor no. : 0 421 833 404
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM 441
 1st version kW : 129.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 100...120
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175

Test Lines : 1 680 750 015
 Outside diameter x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 11.0...11.2

100 s: (10.7...11.4)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0
 Rack travel in mm : 7.7...8.3
 Del.quantity cm³/ : 1.2...1.8
 100 s: (0.9...2.0)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del.quantity cm³/ : 110.0...112.0
 1000 : (107.5...114.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever position degrees: 94...102

Testing:

1st rack travel in: 10.40
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1100...1118
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 420...480

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 11.40...11.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ 1000 s: 98.0...102.0
Spread cm³ : 6.00
1000 s: (8.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1030...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 140.0...160.0
136.0...164.0)

Remarks:

:

H03

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 401 876 797

Injection pump
 Pump designation : PE6P120A320LS3815-13
 EP type number : 0 411 826 782
 Governor
 Governor design. : RSV350...1000POA827
 Governor no. : 0 421 833 402

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441A

1st version kW : 177.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 4.7...5.3
 Del.quantity cm³/ : 1.4...2.2
 100 s: (1.1...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980
 Del.quantity 1000 : 171.0...173.0
 : (168.0...176.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 95...103

Testing:

1st rack travel in: 10.00
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1100...1118
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 380...440

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ 1000 s: 172.0...176.0
1000 s: (169.0...179.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1030...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 190.0...210.0
1000 s: (186.0...214.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE
 Edition : 26.02.93
 Replaces : 04.92
 Test oil : ISO-4113
 Combination no. : 0 401 878 714
 Injection pump
 Pump designation : PE8P110A320LS3853
 EP type number : 0 411 818 720
 Governor
 Governor design. : RSV400...900P1A544
 Governor no. : 0 421 833 326
 Customer-spec. information
 Customer : LIEBHERR
 Engine : D 9308 T
 1st version kW : 260.0
 Rated speed : 1800
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness
 x Length mm : 6.00x1.50x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 3-
 5- 4
 Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 890
 Rack travel in mm : 13.80...13.90
 Del.quantity cm³/ : 17.5...17.8
 100 s: (17.2...18.0)
 Spread cm³ : 0.4
 100 s: (0.7)
 2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.3...1.8
 100 s: (1.0...2.0)
 Spread cm³ : 0.4
 100 s: (0.7)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70
 Governor spring pre-tension
 Click setting x : 2.50
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 890
 Del.quantity : 175.0...178.0
 1000 : (172.5...180.5)
 Spread cm³ : 4.00
 1000 : (7.50)
RATED SPEED
 1st version
 Control lever
 position degrees: 87...95
 Testing:
 1st rack travel in: 12.80
 Speed rpm : 930...940
 2nd rack travel in: 4.00

Speed rpm : 945...975
3rd rack travel in: 4.00
Speed rpm : 950...980
4th rack travel in: 1120
Speed rpm : 0.30...1.40

:

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 890
Rack travel in m: 13.80...13.90
2nd speed rpm : 500
Rack travel in m: 13.80...14.00
3rd speed rpm : 420
Rack travel in m: 15.00...15.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 176.0...184.0
1000 s: (173.0...187.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 930...940

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 13.0...18.0
1000 s: (10.5...20.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

H07

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 747
 Injection pump
 Pump designation : PES6P110A120RS3296
 EP type number : 0 412 016 738
 Governor
 Governor design. : RQV400...1250PA1014
 Governor no. : -1K
 Governor no. : 0 421 815 291
 Customer-spec. information
 Customer : CUMMINS
 Engine : 6BTA-A
 1st version kW : 130.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 14.4...14.6

100 s: (14.2...14.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 1.7...2.1

100 s: (1.5...2.4)

Spread cm³ : 0.6

100 s: (0.9)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 400
travel mm		: 1.50...1.90
2nd speed	rpm	: 600
travel mm		: 2.80...3.30
3rd speed	rpm	: 1000
travel mm		: 4.80...5.40
4th speed	rpm	: 1310
travel mm		: 7.20...7.40
5th speed	rpm	: 1500
travel mm		: 8.90...9.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del.quantity : 144.0...146.0
1000 : (142.0...148.0)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 12.00
Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1580
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack trave: 7.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 350...700

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.00...13.10
2nd speed rpm : 800
Rack travel in m: 11.00...11.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 255
Rack travel in m: 9.60...9.70
3rd pressure hPa : 565
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 136.5...140.5
1000 s: (134.5...142.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 97.5...101.5
1000 s: (95.5...103.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 10.90...11.90

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 17.5...21.5
1000 s: (15.0...24.0)
Spread cm³ : 6.00
1000 s: (9.00)

Remarks: : C.D.C. # 3921837
Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 v
 Edition : 05.03.93
 Replaces : 04.87
 Test oil : ISO-4113
 Combination no. : 0 402 046 787

Injection pump
 Pump designation : PES6P110A720RS3104
 EP type number : 0 412 016 712
 Governor
 Governor design. : RQV375...1000PA862
 Governer no. : 0 421 813 625

Customer-spec. information

Customer : KHD
 Engine : BF6L513R

1st version kW : 156.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm³/

100 s: (13.6...14.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 375.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/

100 s: (1.3...2.4)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 375

travel mm : 0.90...1.10

2nd speed rpm : 410

travel mm : 1.60...1.90

3rd speed rpm : 550

travel mm : 2.80...3.10

4th speed rpm : 1050

travel mm : 8.50...8.60

5th speed rpm : 1110

travel mm : 9.50...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity 1000 : 139.0...141.0

(136.0...144.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Remarks:

:

Testing:

1st rack travel in: 12.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1250
Speed rpm : 0.00...1.00

APPLICATION

Excavator

LOW IDLE 1

Control lever
position degrees: 86...94

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 375
Rack travel in mm : 8.00...8.20

CONSTANT REGULATION

Speed rpm : 375...480

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.20...13.30
2nd speed rpm : 650
Rack travel in m: 13.40...13.50
3rd speed rpm : 825
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 146.0...150.0
1000 s: (143.0...153.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11.7 a17
 Edition : 26.02.93
 Replaces : 06.92
 Test oil : ISO-4113

Combination no. : 0 402 046 807

Injection pump
 Pump designation : PES6P110A820LS3131
 EP type number : 0 412 016 715
 Governor
 Governor design. : RQV300.1100PA916
 Governer no. : 0 421 813 748

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447

1st version kW : 168.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del.quantity cm³/

100 s: (13.4...14.1)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del.quantity cm³/

100 s: (1.1...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.60...1.90
2nd speed	rpm	: 425
travel mm		: 3.30...3.70
3rd speed	rpm	: 920
travel mm		: 5.70...6.10
4th speed	rpm	: 1155
travel mm		: 7.90...8.40
5th speed	rpm	: 1255
travel mm		: 9.70...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1160

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 137.0...139.0
1000 : (134.5...141.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 85...93

Testing:
Speed rpm : 200
Minimum rack trave: 9.20
Speed rpm : 300
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 113.0...116.0
1000 s: (110.0...119.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 05.03.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 046 838
 Injection pump
 Pump designation : PES6P100A320LS3306
 EP type number : 0 412 006 703
 Governor
 Governor design. : RQV350...1200PA1042K
 Governer no. : 0 421 815 320

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466
 1st version kW : 172.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 800
		Rack travel in mm : 13.80...13.90
Del.quantity cm ³ /		: 15.9...16.1
		100 s: (15.7...16.3)
Spread	cm ³	: 0.8
		100 s: (1.2)

2nd speed	rpm	: 350.0
		Rack travel in mm : 6.0...6.2
Del.quantity cm ³ /		: 1.7...2.1
		100 s: (1.5...2.4)
Spread	cm ³	: 0.4
		100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel	mm	: 1.80...2.00
2nd speed	rpm	: 500
travel	mm	: 3.50...3.90
3rd speed	rpm	: 800
travel	mm	: 6.20...6.60
4th speed	rpm	: 1250
travel	mm	: 9.30...9.50
5th speed	rpm	: 1400
travel	mm	: 10.50...11.00

GUIDE SLEEVE POSITION

Control-lever position		
Degree:	-1	
Speed	rpm	: 1440
		Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 800
		Aneroid pressure h: 1200

Del.quantity : 159.5...161.5
1000 : (157.5...163.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.60
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 74...83

Testing:
Speed rpm : 275
Minimum rack trave: 7.70
Speed rpm : 350
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 13.80...13.90
2nd speed rpm : 1200
Rack travel in m: 14.60...14.80
3rd speed rpm : 600
Rack travel in m: 12.90...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 14.50...14.70

Measurement
Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 10.40...10.80
2nd pressure hPa : 300
Rack travel in m: 11.50...11.60
3rd pressure hPa : 660

Rack travel in m: 13.50...13.90

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm³/ s: 160.0...164.0
1000 s: (158.0...166.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1200
Del.quantity cm³/ s: 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ s: 17.5...21.5
1000 s: (15.0...24.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks: : NAVISTAR #1819913C91

Delivery-valve spring pre-tension =
6.00...6.10 mm.
Permissible alteration from 5.70...6.30
mm

Bow dimension:
Sliding-sleeve position = 37.0 mm
Limit shutoff stop screw to 1.0 mm.

Start-of-delivery blocking at start of
delivery of cylinder no. 1.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 21.04.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 046 841

Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 Governor no. : 0 421 815 328

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 171.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 14.1...14.3

100 s: (13.9...14.5)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...2.00

2nd speed rpm : 500

travel mm : 3.80...4.20

3rd speed rpm : 800

travel mm : 5.80...6.20

4th speed rpm : 1300

travel mm : 8.90...9.10

5th speed rpm : 1500

travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1200

Del.quantity : 141.5...143.5

1000 : (139.5...145.5)

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 12.00
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 275
Minimum rack trave: 6.50
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 13.00...13.10
2nd speed rpm : 1000
Rack travel in m: 12.60...12.80
3rd speed rpm : 700
Rack travel in m: 11.80...12.20
4th speed rpm : 900
Rack travel in m: 12.50...12.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 300
Rack travel in m: 10.50...10.60
3rd pressure hPa : 670

Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm³/ 1000 s: 143.5...147.5
1000 s: (141.5...149.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 900
Del.quantity cm³/ 1000 s: 85.5...89.5
1000 s: (83.5...91.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ 1000 s: 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks: : NAVISTAR #1819917C91

Limit shutoff stop screw to 1.0 mm.

Bow dimension:
Sliding-sleeve position = 37.0 mm
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 842
 Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -5K
 Governer no. : 0 421 815 329
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DTA-408
 1st version kW : 156.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow
 quantity min. 1/h: 240...260
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 (2.90...3.10)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel mm		: 1.60...2.00
2nd speed	rpm	: 500
travel mm		: 3.80...4.20
3rd speed	rpm	: 800
travel mm		: 5.80...6.20
4th speed	rpm	: 1300
travel mm		: 8.90...9.10
5th speed	rpm	: 1500
travel mm		: 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1300
Aneroid pressure h:		: 1200
Del.quantity		: 142.0...144.0
1000		: (140.0...146.0)

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 11.90
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 275
Minimum rack trave: 6.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.90...13.00
2nd speed rpm : 900
Rack travel in m: 12.50...12.70
3rd speed rpm : 700
Rack travel in m: 11.80...12.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 1300
1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 290
Rack travel in m: 10.40...10.50
3rd pressure hPa : 700
Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ 1000 s: 146.0...150.0
 1000 s: (144.0...152.0)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1300
Del.quantity cm³/ 1000 s: 85.5...89.5
 1000 s: (83.5...91.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 120.0...160.0
 1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ 1000 s: 13.0...17.0
 1000 s: (10.5...19.5)
Spread cm³ : 4.00
 1000 s: (6.50)

Remarks: : NAVISTAR #1819918C91

Limit shutoff stop screw to 1.0 mm.

Bow dimension:
Sliding-sleeve position = 37.0 mm
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 26.02.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 046 845
 Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
^{-6K}
 Governor no. : 0 421 815 330
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DTA-408
 1st version kW : 142.0
 Rated speed : 2600
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow
 quantity min. 1/h: 240...260
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm	: 2.95...3.05
	(2.90...3.10)
Rack travel in mm	: 14.00...17.00
Firing order	: 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 13.6...13.8

100 s: (13.4...14.0)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel mm		: 1.60...2.00
2nd speed	rpm	: 500
travel mm		: 3.80...4.20
3rd speed	rpm	: 800
travel mm		: 5.80...6.20
4th speed	rpm	: 1300
travel mm		: 8.90...9.10
5th speed	rpm	: 1500
travel mm		: 10.40...10.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 8.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure hPa : 1200
 Del.quantity 1000 cm³ : 136.5...138.5
 Spread 1000 cm³ : 8.00
 1000 s : (12.00)

RATED SPEED

1st version
 Control lever position degrees: 112...120

Testing:
 1st rack travel in: 11.40
 Speed rpm : 1340...1370
 2nd rack travel in: 4.00
 Speed rpm : 1500...1510
 4th rack travel in: 1530
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever position degrees: 71...79

Testing:
 Speed rpm : 275
 Minimum rack travel: 6.00
 Speed rpm : 350
 Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
 Speed rpm : 350...520

TORQUE CONTROL
 Dimension a mm : ?
 Torque control curve - 1st version
 1st speed rpm : 900
 Rack travel in m : 12.10...12.20
 2nd speed rpm : 1300
 Rack travel in m : 12.40...12.60
 3rd speed rpm : 700
 Rack travel in m : 11.40...11.80

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 1300
 Pressure hPa : 1200
 Rack travel mm : 12.40...12.60

Measurement
 Speed 1/min : 1300

1st pressure hPa : -

Rack travel in m: 9.50...9.90
 2nd pressure hPa : 250
 Rack travel in m: 10.30...10.40
 3rd pressure hPa : 600
 Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure hPa : 1200
 Speed rpm : 1300
 Del.quantity 1000 cm³/s : 134.0...138.0
 1000 s : (132.0...140.0)
 Spread 1000 cm³ : 8.00
 1000 s : (12.0)
 Aneroid pressure hPa : -
 Speed rpm : 1300
 Del.quantity 1000 cm³/s : 87.0...91.0
 1000 s : (85.0...93.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 11.40
 Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity 1000 cm³/s : 120.0...160.0
 1000 s : (115.0...165.0)
 Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 5.40...5.60
 Del.quantity 1000 cm³/s : 13.0...17.0
 1000 s : (10.5...19.5)
 Spread 1000 cm³ : 4.00
 1000 s : (6.50)

Remarks: : NAVISTAR #1819922C91

Bow dimension:
 Sliding-sleeve position = 37.0 mm
 Limit shutoff stop screw to 1.0 mm.

Start-of-delivery blocking at start of

delivery of cylinder no. 1.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : AIF 11.6 a
 Edition : 05.03.93
 Replaces : 12.91
 Test oil : ISO-4113

Combination no. : 0 402 076 058

Injection pump
 Pump designation : PES6P120A700RS532-1
 EP type number : 0 412 026 061
 Governor
 Governor design. : RSV300...1200POA552
 Governer no. : 0 421 833 368

Customer-spec. information
 Customer : IVECO-AIFO

Engine : 8361 SRM 37

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.50...13.70

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 900

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 12.50

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1295...1325

4th rack travel in: 1450

Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.3

Testing:
Speed rpm : 100
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 345...405

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 13.50...13.60
2nd speed rpm : 550
Rack travel in m: 13.50...13.70
3rd speed rpm : 350
Rack travel in m: 14.70...15.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.50...13.70

Measurement
Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 12.00...12.20
2nd pressure hPa : 400
Rack travel in m: 12.90...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1240...1250

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.60...5.00
Del.quantity cm³/ s: 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 059
 Injection pump
 Pump designation : PES6P110A720RS370
 EP type number : 0 412 016 052
 Governor
 Governor design. : RSV500...900POA455-5
 Governor no. : 0 421 833 400

Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6619T F01
 1st version kW : 200.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 581 343 009
 Opening pressure, bar : 175...178

Test lines : 1 680 750 015
 Outside diameter x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29
 Prestroke mm : 2.75...2.85
 (2.70...2.90)
 Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 12.3...12.5

100 s: (12.1...12.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 123.0...125.0

1000 : (121.0...127.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 9.60

Speed rpm : 945...955

2nd rack travel in: 4.00

Speed rpm : 1040...1050

3rd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.9

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.30...6.50

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.60...10.70
2nd speed rpm : 650
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ 1000 s: 138.0...142.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 945...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 180.0...200.0
1000 s: (175.0...205.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ 1000 s: 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

H27

: JOHN DEERE # AR88760

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 21.04.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 752
 Injection pump
 Pump designation : PES6P11GA720RS3144
 EP type number : 9 410 231 035
 Governor
 Governor design. : RSV400...1050POA513
 Governer no. : 0 421 833 399
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6619 A
 1st version kW : 215.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X3.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 21.5...21.7

100 s: (21.3...21.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del.quantity : 215.0...217.0

1000 : (213.0...219.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:
 1st rack travel in: 12.60
 Speed rpm : 1100...1110
 2nd rack travel in: 4.00
 Speed rpm : 1180...1190
 3rd rack travel in: 4.00
 Speed rpm : 1170...1200
 4th rack travel in: 1280
 Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
 position degrees: 19...27
Setting point w/out bumper spring
 Speed rpm : 400
 Rack travel in mm : 5.4

Testing:
 Speed rpm : 100
Minimum rack trave: 19.00
 Speed rpm : 400
 Rack travel in mm : 5.80...6.00

TORQUE CONTROL
Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 13.60...13.70
 2nd speed rpm : 750
 Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version
Setting
 Speed rpm : 500
 Pressure hPa : 900
 Rack travel mm : 14.40...14.60

Measurement
 Speed 1/min : 500

1st pressure hPa : -
 Rack travel in m: 11.20...11.40
 2nd pressure hPa : 240
 Rack travel in m: 12.10...12.50
 3rd pressure hPa : 720
 Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 600
 Speed rpm : 750
 Del.quantity cm³/ 1000 s: 219.5...223.5
 1000 s: (217.5...225.5)

Aneroid pressure h: -
 Speed rpm : 500

Del.quantity cm³/ 1000 s: 156.0...160.0
 1000 s: (154.0...162.0)

BREAKAWAY
1st version
 1mm rack travel less than
 full load rack tr: 12.60
 Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ 1000 s: 170.0...190.0
 1000 s: (166.0...194.0)

LOW IDLE

Speed rpm : 400
 Rack travel in mm : 5.80...6.00
 Del.quantity cm³/ 1000 s: 18.0...22.0
 1000 s: (15.5...24.5)
 Spread cm³ : 6.00
 1000 s: (8.00)

Remarks: : JOHN DEERE # RE23749
 Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 13° cam angle after start of delivery cyl. 1.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

J01

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 076 755

Injection pump
 Pump designation : PES6P110A320LS3318
 EP type number : 0 412 016 741
 Governor
 Governor design. : RSV350...750P4A561
 Governer no. : 0 421 833 406

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 185.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 20.9...21.1

100 s: (20.7...21.3)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 3.9...4.3

100 s: (3.7...4.5)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 209.0...211.0

1000 : (207.0...213.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.50
Speed rpm : 765...775
2nd rack travel in: 4.00
Speed rpm : 800...810
3rd rack travel in: 4.00
Speed rpm : 805...815
4th rack travel in: 900
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.60

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 765...775

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 39.5...43.5
1000 s: (37.0...45.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1820271C91

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

APPLICATION

Generator

J03

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 755A
 Injection pump
 Pump designation : PES6P110A320LS3318
 EP type number : 0 412 016 741
 Governor
 Governor design. : RSV350...750P4A561
 Governer no. : 0 421 833 406
 Cust. part no. : 1820271C91A
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DTA-466
 1st version kW : 208.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow quantity min. 1/h: 175...195
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 850
<hr/>		
Rack travel in mm	: 12.50...12.60	
<hr/>		
Del.quantity cm ³ /	: 19.9...20.1	
<hr/>		
100 s:	(19.7...20.3)	
<hr/>		
Spread	cm ³	: 0.8
<hr/>		
100 s: (1.2)		
<hr/>		
2nd speed	rpm	: 350.0
Rack travel in mm	: 5.5...5.7	
Del.quantity cm ³ /	: 3.9...4.3	
<hr/>		
100 s:	(3.7...4.5)	
Spread	cm ³	: 0.4
<hr/>		
100 s: (0.6)		
<hr/>		
1st version		
Speed	rpm	: 850
Del.quantity		: 199.5...201.5
<hr/>		
1000		: (197.5...203.5)
Spread	cm ³	: 8.00
<hr/>		
1000		: (12.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Generator

Testing:

1st rack travel in: 11.50
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 940...950
3rd rack travel in: 4.00
Speed rpm : 945...955
4th rack travel in: 1050
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 39.5...43.5
1000 s: (37.0...45.0)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 076 756

Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 204.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.60...14.70

Del.quantity cm³/ : 16.8...17.0

100 s: (16.6...17.2)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del.quantity : 168.0...170.0

1000 : (166.0...172.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 53...61

Testing:

1st rack travel in: 13.60
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 14.60...14.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 290
Rack travel in m: 9.50...9.60
3rd pressure hPa : 700
Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

Start-of-delivery blocking at start of 1
delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet	:	NAV
Edition	:	21.04.93
Replaces	:	-
Test oil	:	ISO-4113
Combination no.	:	0 402 076 756A
Injection pump	:	
Pump designation	:	PES6P100A320LS3317
EP type number	:	0 412 006 706
Governor	:	
Governor design.	:	RSV350...1200P2A562
Governer no.	:	0 421 833 407
Cust. part no.	:	1820269C91A
Customer-spec. information		
Customer	:	NAVISTAR
Engine	:	DTA-466
1st version kW	:	185.0
Rated speed	:	2400
TEST BENCH REQUIREMENTS		
Test oil	:	
inlet temp. °C	:	38...42
Overflow valve	:	1 417 413 058
Inlet press., bar	:	2.80
Overflow quantity min. 1/h	:	175...195
Test nozzle holder assembly	:	1 688 901 101
Opening pressure, bar	:	207...210
Orifice plate diameter mm	:	0,6
Test lines	:	1 680 750 008
Outside diameter x Wall thickness	:	
x Length mm	:	6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm	:	2.95...3.05
	:	(2.90...3.10)
Rack travel in mm	:	9.00...12.00
Firing order	:	1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	:	1200
-----------	-----	---	------

Rack travel in mm	:	13.90...14.00
-------------------	---	---------------

Del.quantity cm ³ /	:	15.6...15.8
--------------------------------	---	-------------

100 s:	(15.4...16.0)
--------	---------------

Spread	cm ³	:	0.8
--------	-----------------	---	-----

100 s:	(1.2)
--------	-------

2nd speed	rpm	:	350.0
-----------	-----	---	-------

Rack travel in mm	:	4.8...5.0
-------------------	---	-----------

Del.quantity cm ³ /	:	1.5...1.9
--------------------------------	---	-----------

100 s:	(1.2...2.1)
--------	-------------

Spread	cm ³	:	0.4
--------	-----------------	---	-----

100 s:	(0.6)
--------	-------

GUIDE SLEEVE POSITION

Control-lever position	
------------------------	--

Degree:	-3
---------	----

Speed	rpm	:	800
-------	-----	---	-----

Rack travel in mm	:	0.30...0.70
-------------------	---	-------------

Governor spring pre-tension	
-----------------------------	--

Click setting x	:	4.00
-----------------	---	------

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	
-------------	--

Speed	rpm	:	1200
-------	-----	---	------

Aneroid pressure h:	1500
---------------------	------

Del.quantity	:	156.0...158.0
--------------	---	---------------

1000	:	(154.0...160.0)
------	---	-----------------

Spread	cm ³	:	8.00
--------	-----------------	---	------

1000	:	(12.00)
------	---	---------

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 12.90
Speed rpm : 1250...1260
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 270
Rack travel in m: 9.30...9.40
3rd pressure hPa : 640
Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of delivery of cylinder no. 1.

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 756B
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governer no. : 0 421 833 407
 Cust. part no. : 1820269C91B
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DTA-466
 1st version kW : 156.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow quantity min. 1/h: 175...195
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 13.40...13.50
 Del.quantity cm³/ : 14.9...15.1
 : 100 s: (14.7...15.3)
 Spread cm³ : 0.8
 : 100 s: (1.2)
 2nd speed rpm : 350.0
 Rack travel in mm : 4.8...5.0
 Del.quantity cm³/ : 1.5...1.9
 : 100 s: (1.2...2.1)
 Spread cm³ : 0.4
 : 100 s: (0.6)

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70
 Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1200
 Aneroid pressure h: 1500
 Del.quantity : 149.0...151.0
 : 1000 : (147.0...153.0)
 Spread cm³ : 8.00
 : 1000 : (12.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 12.40
Speed rpm : 1255...1265
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 260
Rack travel in m: 9.20...9.30
3rd pressure hPa : 600
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1255...1265

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of delivery of cylinder no. 1.

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 756C
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governer no. : 0 421 833 407
 Cust. part no. : 1820269091C
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DTA-466
 1st version kW : 145.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow
 quantity min. 1/h: 175...195
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29
 Prestroke mm : 2.95...3.05
 (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1200
Rack travel in mm		: 12.80...12.90
Del.quantity cm ³ /		: 14.1...14.3
	100 s:	(13.9...14.5)
Spread	cm ³	: 0.8
	100 s:	(1.2)
2nd speed	rpm	: 350.0
Rack travel in mm		: 4.8...5.0
Del.quantity cm ³ /		: 1.5...1.9
	100 s:	(1.2...2.1)
Spread	cm ³	: 0.4
	100 s:	(0.6)

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70
 Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 1200
Aneroid pressure h:		: 1500
Del.quantity		: 141.5...143.5
	1000	: (139.5...145.5)
Spread	cm ³	: 8.00
	1000	: (12.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 11.80
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 240
Rack travel in m: 9.00...9.10
3rd pressure hPa : 530
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of delivery of cylinder no. 1.

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 790
 Injection pump
 Pump designation : PE6P120A320LS7864
 EP type number : 0 412 626 879
 Governor
 Governor design. : RQV350...1050PA1052
 Governor no. : 0 421 814 044
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM401 LA, Euro 1
 1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 110...130
 Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	:	5.20...5.30
	:	(5.15...5.35)
Rack travel in mm	:	20.00...21.00
Firing order	:	6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed	rpm	:	550
-----------	-----	---	-----

Rack travel in mm	:	12.40...12.50
-------------------	---	---------------

Del.quantity cm ³ /	:	20.0...20.2
--------------------------------	---	-------------

100 s:	(19.7...20.5)
--------	---------------

Spread	cm ³	:	0.5
--------	-----------------	---	-----

100 s:	(0.9)
--------	-------

2nd speed	rpm	:	350.0
-----------	-----	---	-------

Rack travel in mm	:	4.9...5.5
-------------------	---	-----------

Del.quantity cm ³ /	:	1.6...2.2
--------------------------------	---	-----------

100 s:	(1.3...2.5)
--------	-------------

Spread	cm ³	:	0.6
--------	-----------------	---	-----

100 s:	(1.0)
--------	-------

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	:	350
travel mm	:	1.00...1.50	
2nd speed	rpm	:	453
travel mm	:	2.30...2.80	
3rd speed	rpm	:	770
travel mm	:	4.70...5.20	
4th speed	rpm	:	1108
travel mm	:	9.40...9.90	

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 10.10...12.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h: 1000
Del.quantity : 200.0...202.0
1000 : (197.0...205.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 99...107

Testing:
1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 250
Minimum rack trave: 8.70
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 380...450

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.30

Measurement
Speed 1/min : 500
1st pressure hPa : 200
Rack travel in m: 10.40...10.50
2nd pressure hPa : 450
Rack travel in m: 11.70...11.90

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/s : 200.0...204.0
1000 s: (197.0...207.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/s : 150.0...154.0 *
1000 s: (147.0...157.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/s : 126.0...128.0
1000 s: (123.0...131.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/s : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9.0 L 1
 Edition : 26.02.93
 Replaces : 02.90
 Test oil : ISO-4113

Combination no. : 0 402 646 848

Injection pump
 Pump designation : PE6P120A320RS7138
 EP type number : 0 412 626 822
 Governor
 Governor design. : RQV200...1100PA712-3
 Governor no. : 0 421 813 637

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS9 05

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...5.55)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 16.5...16.7

100 s: (16.2...17.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.9...5.3

Del.quantity cm³/ : 2.1...2.5

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 0.90...1.30

2nd speed rpm : 350

travel mm : 2.50...3.10

3rd speed rpm : 650

travel mm : 5.40...6.00

4th speed rpm : 1145

travel mm : 8.90...9.10

5th speed rpm : 1280

travel mm : 10.10...10.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 165.0...167.0

1000 : (162.0...170.0)

Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 11.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 125
Minimum rack trave: 6.00
Speed rpm : 225
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 300...360

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...11.00
2nd pressure hPa : 360
Rack travel in m: 11.80...11.90
3rd pressure hPa : 240
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm³/ : 160.0...168.0
 1000 s: (158.0...170.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 125.0...129.0
 1000 s: (123.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...320.0
 1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.90...5.10

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on 1988-09-21

Start of delivery - engine: 13° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 i1
 Edition : 26.02.93
 Replaces : 02.90
 Test oil : ISO-4113
 Combination no. : 0 402 646 865

Injection pump
 Pump designation : PE6P120A720RS7020
 EP type number : 0 412 626 828
 Governor
 Governor design. : RQV200...1000PA539-8
 Governor no. : 0 421 813 635

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS11 34

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1045

travel mm : 8.40...8.60

5th speed rpm : 1150

travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 208.0...210.0

1000 : (205.0...213.0)

Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 11.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 61...69

Testing:
Speed rpm : 125
Minimum rack trave: 5.80
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 340...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 520
Rack travel in m: 12.30...12.40
3rd pressure hPa : 320
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 198.0...206.0
 1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 151.0...155.0
 1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
 1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 13° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 j1
 Edition : 26.02.93
 Replaces : 02.90
 Test oil : ISO-4113
 Combination no. : 0 402 646 868
 Injection pump
 Pump designation : PE6P120A720RS7020
 EP type number : 0 412 626 828
 Governor
 Governor design. : RQ200/1000PA713-5
 Governer no. : 0 421 801 444

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS11 34

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 208.0...210.0

1000 : (205.0...213.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 11.90

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 4.7

Testing:

Speed rpm : 125
Minimum rack trave: 5.80
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 305...345

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 520
Rack travel in m: 12.30...12.40
3rd pressure hPa : 320
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 198.0...206.0
1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 13° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 o
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 875
 Injection pump
 Pump designation : PE6P120A720RS7126Z
 EP type number : 0 412 626 830
 Governor
 Governor design. : RQ200/1000PA745-1
 Governer no. : 0 421 801 472

Customer-spec. information

Customer : SCANIA

Engine : DSC 11 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 20.4...20.6

100 s: (20.1...20.9)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.7...5.1

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 204.0...206.0

1000 : (201.0...209.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 11.80

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1180...1210

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack trave: 6.30
Speed rpm : 225
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 310...350

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 470
Rack travel in m: 12.20...12.30
3rd pressure hPa : 320
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ 1000 s: 197.0...205.0
1000 s: (195.0...207.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 142.0...146.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 130.0...170.0
1000 s: (-)

Rack travel in mm : 10.30...10.70

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.70...4.90

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 9° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 r
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113

Combination no. : 0 402 646 887

Injection pump
 Pump designation : PE6P120A720RS7188
 EP type number : 0 412 626 832
 Governor
 Governor design. : RQV200...950PA725-7
 Governor no. : 0 421 813 803

Customer-spec. information

Customer : SCANIA

Engine : DSC 11 23

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.30

Overflow
 quantity min. 1/h: 170...0

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 25.1...25.3

100 s: (24.8...25.6)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.3...1.9

100 s: (-)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 225
travel mm		: 1.20...1.60
2nd speed	rpm	: 350
travel mm		: 2.40...3.00
3rd speed	rpm	: 650
travel mm		: 4.50...5.10
4th speed	rpm	: 1045
travel mm		: 8.40...8.60
5th speed	rpm	: 1125
travel mm		: 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del.quantity : 251.0...253.0
1000 : (248.0...256.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 125
Minimum rack trav: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 228.0...236.0
1000 s: (226.0...238.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 152.0...154.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...180.0
1000 s: (-)

Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113

Combination no. : 0 402 646 910

Injection pump
 Pump designation : PE6P120A320RS7138
 EP type number : 0 412 626 822
 Governor
 Governor design. : RQV200...1100PA712-5
 Governer no. : 0 421 813 951

Customer-spec. information
 Customer : SCANIA

Engine : DS9 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.30

Overflow
 quantity min. 1/h: 170...0

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm	: 4.40...4.50
	: (4.35...4.55)
Rack travel in mm	: 9.00...12.00
Firing order	: 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.5...4.9

Del.quantity cm³/ : 1.3...1.9

100 s: (-)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 225
travel mm		: 0.90...1.30
2nd speed	rpm	: 350
travel mm		: 2.50...3.10
3rd speed	rpm	: 650
travel mm		: 5.40...6.00
4th speed	rpm	: 1145
travel mm		: 8.90...9.10
5th speed	rpm	: 1280
travel mm		: 10.10...10.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 179.0...181.0
1000 : (176.0...184.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 12.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 150
Minimum rack trave: 5.80
Speed rpm : 250
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 310...370

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 480
Rack travel in m: 12.30...12.40
3rd pressure hPa : 220
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm³/ : 162.0...170.0
1000 s: (160.0...172.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 114.0...118.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...140.0
1000 s: (-)
Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.50...4.70

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 928
 Injection pump
 Pump designation : PE6P120A320RS7138
 EP type number : 0 412 626 822
 Governor
 Governor design. : RQV350...1100PA795
 -12
 Governor no. : 0 421 813 914
 Customer-spec. information
 Customer : SCANIA
 Engine : DS9 05
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 700
 Rack travel in mm : 12.20...12.30
 Del.quantity cm³/ : 16.5...16.7
 100 s: (16.2...17.0)
 Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 4.9...5.3
 Del.quantity cm³/ : 2.0...2.4
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 2nd speed rpm : 350
 travel mm : 1.30...1.70
 3rd speed rpm : 650
 travel mm : 4.10...4.70
 4th speed rpm : 1150
 travel mm : 7.80...8.00
 5th speed rpm : 1260
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1230
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 165.0...167.0
 1000 : (162.0...170.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Testing:

1st rack travel in: 11.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 68...76

Testing:

Speed rpm : 250
Minimum rack trave: 7.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...11.00
2nd pressure hPa : 360
Rack travel in m: 11.80...11.90
3rd pressure hPa : 240
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm³/ : 163.0...171.0
1000 s: (161.0...173.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 125.0...129.0
1000 s: (122.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...320.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 01.93
 Test oil : ISO-4113

Combination no. : 0 402 646 938

Injection pump
 Pump designation : PE6P120A720RS71880
 EP type number : 0 412 626 846
 Governor
 Governor design. : RQ200/950PA745-3
 Governor no. : 0 421 801 579

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 21

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.30

Overflow
 quantity min. 1/h: 170...0

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.80

Del.quantity cm³/

100 s: (21.6...22.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/

100 s: (-)

Spread cm³ : 0.4

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del.quantity : 219.0...221.0

1000 : (216.0...224.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 11.70

Speed rpm : 995...1010
2nd rack travel in: 4.00
Speed rpm : 1085...1115
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.7

Testing:
Speed rpm : 125
Minimum rack trave: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 330...370

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 202.0...210.0
1000 s: (200.0...212.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...200.0
1000 s: (-)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8/3 a 8
 Edition : 20.04.93
 Replaces : 30.9.88
 Test oil : ISO-4113

Combination no. : 9 400 230 111

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030

Governor
 Governor design. : RSV400...1100AOC2190
 -23R

Governer no. : 9 420 234 174

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

K04

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400

Rack travel in mm : 7.4...7.6

Del.quantity cm³/ : 2.8...3.2

100 s: (2.5...3.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:
1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 7.40...7.60
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 110.5...114.5
1000 s: (108.5...116.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

K05

Rack travel in mm : 7.40...7.60
Del.quantity cm³/ : 28.0...32.0
1000 s: (25.5...34.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : C.D.C. # 3911545

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 5,9 w 2
 Edition : 13.05.93
 Replaces : 21.09.92
 Test oil : ISO-4113

Combination no. : 0 402 736 811

Injection pump
 Pump designation : PES6P110A120RS7213
 EP type number : 0 412 716 804
 Governor
 Governor design. : RQV400...1250PA964
 -3K
 Governer no. : 0 421 815 255

Customer-spec. information

Customer : C.D.C.

Engine : 68TA-A

1st version kW : 147.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.80...14.90

Del.quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 400
travel mm		: 1.60...1.80
2nd speed	rpm	: 600
travel mm		: 2.80...3.30
3rd speed	rpm	: 1300
travel mm		: 7.20...7.40
4th speed	rpm	: 1500
travel mm		: 8.90...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1250
Aneroid pressure h:		: 1200
Del.quantity		: 158.5...160.5
1000		: (155.5...163.5)
Spread	cm ³	: 5.00
1000		: (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 13.80
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 400
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 14.80...14.90
2nd speed rpm : 800
Rack travel in m: 13.20...13.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 8.20...8.60
2nd pressure hPa : 410
Rack travel in m: 10.60...10.70
3rd pressure hPa : 755
Rack travel in m: 13.70...14.10

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 156.5...162.5
1000 s: (153.5...165.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 11.90...12.90

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 04.06.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1400R173
 Type number : 0 460 426 038
 Customer Part-No. : 390 7667

Customer-specific information
 Customer : CDC
 Engine : 6 BT -590

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00
 Inlet press., bar : 0.30...0.40
 Calibrating nozzle-holder
 assembly : 1 688 901 027
 Opening
 Pressure bar: 250.00...253.00
 Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.6
 mm: +0.02(0.06)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100

K08

Charge press. hPa: 750
 Setting value mm: 2.10...2.50
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
 Charge press hPa: 750
 Setting value bar: 4.30...4.90
 Shutoff
 electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 750
 Del. quantity cm³/
 1000S.: 86.00...87.00
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/ : 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 73.50...74.50
 Shutoff
 electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 20.00...26.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/ : 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1600
 Charge press hPa: 750
 Del. quantity cm³/
 1000S.: 32.00...38.00
 Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 97.00...137.00
 mind 1000S.: 97.00
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
 Charge press hPa: 750
 TD travel mm: 2.90...3.70
 mm: (2.60...4.00)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1100
 Charge press hPa: 750
 TD travel mm: 2.10...2.50
 mm: (1.60...3.00)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 900
 Charge press hPa: 750
 TD travel mm: 0.40...1.20
 mm: (0.10...1.50)
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 2.00...2.60
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 1100
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 4.30...4.90
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1400
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 5.60...6.20
 Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1400
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
 Charge-air pressure-setting
 point hPa: 300
 LDA-stroke mm: 4.5
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 80.00...81.00
 1000s.: (76.50...84.50)
 2nd speed 1/min: 1750
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 0.00...3.00
 1000s.: (0.00...3.00)
 5th speed 1/min: 1600
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 32.00...38.00
 1000s.: (29.00...41.00)
 9th speed 1/min: 1400
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 79.50...82.50
 1000s.: (78.00...84.00)
 10th speed 1/min: 1250
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 82.50...85.50
 1000s.: (80.50...87.50)
 12th speed 1/min: 1100
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 86.00...87.00
 1000s.: (83.50...89.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 73.50...74.50
 1000s.: (70.00...78.00)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1400
 Del. quantity cm³: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375

Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

* Correction at adjusting nut

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 20.00...26.00
1000s.: (18.00...28.00)

Dispersion cm³/: 5.5
1000s.: (7.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...4.00
1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 97.00...137.00
1000s.: (97.00...137.00)

2nd speed 1/min: 200

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 45.00...85.00
1000s.: (45.00...85.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 97.00...137.00
1000s.: (97.00...137.00)

Shutoff magnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.3...1.7
SVS max.	mm: 2.4
LDA stroke	mm: 4.5

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 04.06.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1100R159-2
 Type number : 0 460 426 042
 Customer Part-No. : 3907664

Customer-specific information
 Customer : CDC

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 016

Opening Pressure bar: 207.00...210.00

Perforated-plate diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.5
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.10...3.50
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
 Setting value bar: 3.60...4.20
 Shutoff electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 900
 Del. quantity cm³/
 1000S.: 82.00...83.00
 Shutoff electromagnet Volt: 24
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 22.00...28.00
 Shutoff electromagnet Volt: 24

Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1220
 Del. quantity cm³/
 1000S.: 34.00...40.00
 Shutoff electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/: 100.00...140.00
 mind 1000S.: 100.0
 Shutoff electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
 TD travel mm: 5.10...5.90
 mm: (4.80...6.20)

Shutoff electromagnet Volt: 24
 3rd speed 1/min: 750
 TD travel mm: 3.10...3.50
 mm: (2.60...4.00)

Shutoff	Del. quantity cm ³ /: 82.00...83.00
electromagnet Volt: 24	1000s.: (79.50...85.50)
4th speed 1/min: 500	20th speed 1/min: 500
TD travel mm: 1.20...2.00	Shutoff
mm: (0.90...2.30)	electromagnet Volt: 24
Shutoff	Del. quantity cm ³ /: 77.00...85.00
electromagnet Volt: 24	1000s.: (75.00...87.00)
Supply-pump pressure characteristic:	Mech. shutoff:
1st speed 1/min: 500	Mech. Abstellung:
Supply-pump pressure bar: 2.60...3.20	1st speed 1/min: 1100
Shutoff	Del. quantity cm ³ /: 0.00...3.00
electromagnet Volt: 24	1000s.: (0.00...3.00)
2nd speed 1/min: 750	Shutoff
Supply-pump pressure bar: 3.60...4.20	electromagnet volt: 24
Shutoff	Electr. shutoff:
electromagnet Volt: 24	1st speed 1/min: 375
3rd speed 1/min: 1100	Del. quantity cm ³ /: 0.00...3.00
Supply-pump pressure bar: 5.00...5.60	1000s.: (0.00...3.00)
Shutoff	Shutoff
electromagnet Volt: 24	electromagnet volt: -
Overflow quantity at overflow valve:	Idle delivery:
1st speed 1/min: 500	1st speed 1/min: 375
Shutoff	Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
Overflow : 41.70...83.40	Del. quantity cm ³ /: 22.00...28.00
quantity cm ³ /10s: (26.70...98.40)	1000s.: (20.00...30.00)
2nd speed 1/min: 1100	Dispersion cm ³ /: 5.5
Shutoff	1000s.: (7.0)
electromagnet Volt: 24	4th speed 1/min: 450
Overflow : 55.60...139.00	Shutoff
quantity cm ³ /10s: (40.60...154.00)	electromagnet Volt: 24
Delivery-quant. and breakaway char.:	Del. quantity cm ³ /: 0.00...3.00
2nd speed 1/min: 1280	1000s.: (0.00...3.00)
Shutoff	Automatic starting fuel delivery:
electromagnet Volt: 24	1st speed 1/min: 130
Del. quantity cm ³ /: 0.00...3.00	Shutoff
1000s.: (0.00...3.00)	electromagnet Volt: 24
5th speed 1/min: 1220	Del. quantity cm ³ /: 100.00...150.00
Shutoff	1000s.: (100.00...150.00)
electromagnet Volt: 24	2nd speed 1/min: 200
Del. quantity cm ³ /: 34.00...40.00	Shutoff
1000s.: (31.00...43.00)	electromagnet Volt: 24
9th speed 1/min: 1100	Del. quantity cm ³ /: 45.00...85.00
Shutoff	1000s.: (45.00...85.00)
electromagnet Volt: 24	4th speed 1/min: 100
Del. quantity cm ³ /: 75.00...78.00	Shutoff
1000s.: (73.50...79.50)	electromagnet Volt: 24
12th speed 1/min: 900	Del. quantity cm ³ /: 100.00...140.00
Shutoff	1000s.: (100.00...140.00)
electromagnet Volt: 24	

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.2...5.6
MS	mm: 1.5...1.9
SVS max.	mm: 1.5

Remarks:

:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 04.06.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1150R159-3
 Type number : 0 460 426 043
 Customer Part-No. : 3907663

Customer-specific information
 Customer : CDC

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 016

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.5
 mm: +0.02(0.06)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 900

Setting value mm: 4.30...4.70
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900
 Setting value bar: 4.40...5.00
 Shutoff electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 900
 Del. quantity cm³/
 1000S.: 81.50...82.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 18.50...24.50
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1230
 Del. quantity cm³/
 1000S.: 30.00...36.00
 Shutoff electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/: 100.00...140.00
 mind 1000S.: 100.0
 Shutoff electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1150
 TD travel mm: 5.60...6.40
 mm: (5.30...6.70)

Shutoff electromagnet Volt: 24
 3rd speed 1/min: 900
 TD travel mm: 4.30...4.70
 mm: (3.80...5.20)

Shutoff		Del. quantity cm ³ /: 81.50...82.50
electromagnet Volt:	24	1000S.: (79.00...85.00)
4th speed	1/min: 500	20th speed 1/min: 500
TD travel	mm: 1.20...2.00	Shutoff
	mm: (0.90...2.30)	electromagnet Volt: 24
Shutoff		Del. quantity cm ³ /: 78.50...86.50
electromagnet Volt:	24	1000S.: (76.50...88.50)
Supply-pump pressure characteristic:		Mech. shutoff: Mech. Abstellung:
1st speed	1/min: 500	1st speed 1/min: 1250
Supply-pump pressure	bar: 2.70...3.30	Del. quantity cm ³ /: 0.00...3.00
Shutoff		1000S.: (0.00...3.00)
electromagnet Volt:	24	Shutoff
2nd speed	1/min: 900	electromagnet volt: 24
Supply-pump pressure	bar: 4.40...5.00	Electr. shutoff:
Shutoff		1st speed 1/min: 360
electromagnet Volt:	24	Del. quantity cm ³ /: 0.00...3.00
3rd speed	1/min: 1150	1000S.: (0.00...3.00)
Supply-pump pressure	bar: 5.40...6.00	Shutoff
Shutoff		electromagnet volt: -
electromagnet Volt:	24	Idle delivery:
Overflow quantity at overflow valve:		1st speed 1/min: 375
1st speed	1/min: 500	Shutoff
Shutoff		electromagnet Volt: 24
electromagnet Volt:	24	Del. quantity cm ³ /: 18.50...24.50
Overflow	: 41.70...83.40	1000S.: (16.50...26.50)
quantity cm ³ /10s:	(26.70...98.40)	Dispersion cm ³ /: 5.5
2nd speed	1/min: 1150	1000S.: (7.0)
Shutoff		4th speed 1/min: 450
electromagnet Volt:	24	Shutoff
Overflow	: 55.60...139.00	electromagnet Volt: 24
quantity cm ³ /10s:	(40.60...154.00)	Del. quantity cm ³ /: 0.00...3.00
Delivery-quant. and breakaway char.:		1000S.: (0.00...3.00)
2nd speed	1/min: 1290	Automatic starting fuel delivery:
Shutoff		1st speed 1/min: 130
electromagnet Volt:	24	Shutoff
Del. quantity cm ³ /:	0.00...3.00	electromagnet Volt: 24
1000S.: (0.00...3.00)	Del. quantity cm ³ /: 100.00...150.00	
5th speed	1/min: 1230	1000S.: (100.00...150.00)
Shutoff		2nd speed 1/min: 200
electromagnet Volt:	24	Shutoff
Del. quantity cm ³ /:	30.00...36.00	electromagnet Volt: 24
1000S.: (27.00...39.00)	Del. quantity cm ³ /: 45.00...85.00	
9th speed	1/min: 1150	1000S.: (40.00...80.00)
Shutoff		4th speed 1/min: 100
electromagnet Volt:	24	Shutoff
Del. quantity cm ³ /:	74.00...77.00	electromagnet Volt: 24
1000S.: (72.50...78.50)	Del. quantity cm ³ /: 100.00...140.00	
12th speed	1/min: 900	1000S.: (100.00...140.00)
Shutoff		
electromagnet Volt:	24	

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation mm:
K -
KF 5.2...5.6
MS 1.5...1.9
SVS max. 1.5

Remarks:

⋮
⋮

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 04.06.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1050R173-6A
 Type number : 0 460 426 087
 Customer Part-No. : 3910792

Customer-specific information

Customer : CUMMINS
 Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.85
 mm: +0.02(0.06)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

K17

Charge press. hPa: 1000
 Setting value mm: 1.40...1.80
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value bar: 3.30...3.90
 Shutoff electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000s.: 82.50...83.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/: 4.0
 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000s.: 68.50...69.50
 Shutoff electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000s.: 8.00...14.00
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1100
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000s.: 59.00...65.00

Shutoff electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/: 60.00...110.00
 mind 1000s.: 60.00
 Shutoff electromagnet Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
 Charge press hPa: 1000
 TD travel mm: 2.10...2.90
 mm: (1.80...3.20)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 750
 Charge press hPa: 1000
 TD travel mm: 1.40...1.80
 mm: (0.90...2.30)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 600
 Charge press hPa: 1000
 TD travel mm: 0.50...1.30
 mm: (0.20...1.60)
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 2.30...2.90
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 750
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.30...3.90
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1050
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.50...5.10
 Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1050
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
 Charge-air pressure-setting
 point hPa: 400
 LDA-stroke mm: 3.4
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 78.50...79.50
 1000s.: (74.50...83.50)
 2nd speed 1/min: 1180
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 0.00...3.00
 1000s.: (0.00...3.00)
 4th speed 1/min: 1120
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 15.00...55.00
 1000s.: (15.00...55.00)
 5th speed 1/min: 1100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 59.00...65.00
 1000s.: (56.00...68.00)
 9th speed 1/min: 1050
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 77.50...80.50
 1000s.: (76.00...82.00)
 10th speed 1/min: 900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 78.00...81.00
 1000s.: (76.50...82.50)
 12th speed 1/min: 750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 82.50...83.50
 1000s.: (80.00...86.00)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³: 68.50...69.50
 1000s.: (64.50...73.50)
 Mech. shutoff:
 Mech. Abstellung:
 1st speed 1/min: 1050
 Charge press. hPa: 1000
 Del. quantity cm³: 0.00...3.00
 1000s.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Remarks:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Operate control lever after each
manifold-pressure compensator pressure
change.

Shutoff
electromagnet volt: -

* Correction at adjusting nut

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 80.00...130.00
1000S.: (80.00...130.00)

2nd speed 1/min: 440
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...80.00
1000S.: (60.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: -
KF	mm: 5.2...5.6
MS	mm: -
SVS max.	mm: 2.3
LDA stroke	mm: 3.4

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 03.06.93
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R367-2
Type number : 0 460 426 165
Customer Part-No. : 391 6939

Customer-specific information
Customer : CDC

Engine : 6BTAA5.9 IND.

Power KW: 105
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: +0.02(0.06)
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Setting value mm: 2.00...2.40
Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 4.30...4.90
Shutoff electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm³/
1000S.: 67.00...68.00
Shutoff electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 8.00...14.00
Shutoff electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1150
Del. quantity cm³/
1000S.: 52.50...58.50
Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...110.00
mind 1000S.: 60.00
Shutoff electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 2.70...3.50
mm: (2.40...3.80)
Shutoff electromagnet Volt: 12

3rd speed	1/min: 900	Del. quantity cm ³ /:	52.50...58.50
TD travel	mm: 2.00...2.40	1000s.:	(49.50...61.50)
	mm: (1.50...2.90)		
Shutoff		9th speed	1/min: 1100
electromagnet Volt:	12	Shutoff	
4th speed	1/min: 700	electromagnet Volt:	12
TD travel	mm: 0.70...1.50	Del. quantity cm ³ /:	63.50...66.50
	mm: (0.40...1.80)	1000s.:	(62.00...68.00)
Shutoff		10th speed	1/min: 750
electromagnet Volt:	12	Shutoff	
Supply-pump pressure characteristic:		electromagnet Volt:	12
1st speed	1/min: 500	Del. quantity cm ³ /:	68.00...71.00
Supply-pump pressure	bar: 2.60...3.20	1000s.:	(66.00...73.00)
Shutoff		Shutoff	
electromagnet Volt:	12	electromagnet Volt:	12
2nd speed	1/min: 900	12th speed	1/min: 900
Supply-pump pressure	bar: 4.30...4.90	Shutoff	
Shutoff		electromagnet Volt:	12
electromagnet Volt:	12	Del. quantity cm ³ /:	67.00...68.00
3rd speed	1/min: 1100	1000s.:	(64.50...70.50)
Supply-pump pressure	bar: 5.10...5.70	20th speed	1/min: 500
Shutoff		Shutoff	
electromagnet Volt:	12	electromagnet Volt:	12
Overflow quantity at overflow valve:		Del. quantity cm ³ /:	67.50...75.50
1st speed	1/min: 500	1000s.:	(65.50...77.50)
Shutoff		Mech. shutoff:	
electromagnet Volt:	12	Mech. Abstellung:	
Overflow	: 41.70...83.40	1st speed	1/min: 1250
quantity cm ³ /10s:	(26.70...98.40)	Del. quantity cm ³ /:	0.00...3.00
2nd speed	1/min: 1100	1000s.:	(0.00...3.00)
Shutoff		Shutoff	
electromagnet Volt:	12	electromagnet volt:	12
Overflow	: 55.60...139.00	Electr. shutoff:	
quantity cm ³ /10s:	(40.60...154.00)	1st speed	1/min: 375
Delivery-quant. and breakaway char.:		Del. quantity cm ³ /:	0.00...3.00
2nd speed	1/min: 1220	1000s.:	(0.00...3.00)
Shutoff		Shutoff	
electromagnet Volt:	12	electromagnet Volt:	12
Del. quantity cm ³ /:	0.00...3.00	Del. quantity cm ³ /:	8.00...14.00
	1000s.: (0.00...3.00)	1000s.:	(6.00...16.00)
3rd speed	1/min: 1180	Dispersion	cm ³ /: 5.5
Shutoff		1000s.: (7.0)	
electromagnet Volt:	12	2nd speed	1/min: 520
Del. quantity cm ³ /:	10.00...50.00	Shutoff	
	1000s.: (10.00...50.00)	electromagnet Volt:	12
Shutoff		Del. quantity cm ³ /:	0.50...4.50
electromagnet Volt:	12	1000s.:	(0.50...4.50)
5th speed	1/min: 1150	Shutoff	
Shutoff		electromagnet Volt:	12
electromagnet Volt:	12	Automatic starting fuel delivery:	

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 65.00...125.00
1000s.: (65.00...125.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 20.00...60.00
1000s.: (20.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 60.00...110.00
1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.4...5.6
MS mm: 1.1...1.4
SVS max. mm: 1.1

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 04.06.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R320-3
 Type number : 0 460 426 232
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BT- 590A

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 027

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.4
 mm: +0.02(0.06)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

K23

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value mm: 1.30...1.70
 AFB/AFB

valve Volt: 24
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6.80...7.40
 KSB/AFB

valve Volt: 24
 Shutoff electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del. quantity cm³/
 1000S.: 73.00...74.00

KSBAFB
 valve Volt: 24
 Shutoff electromagnet Volt: 24

Dispersion cm³/: 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 51.00...52.00

KSBAFB
 valve Volt: 24
 Shutoff electromagnet Volt: 24

Dispersion cm³/: 9.0
 1000S.: (9.0)

11

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 5.50...9.50

KSBAFB
 valve Volt: 24
 Shutoff electromagnet Volt: 24

Dispersion cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1340
 Charge press. hPa: 1200

Del. quantity cm³/
 1000S.: 52.50...58.50
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Start:
 Speed 1/min: 100
 Del. quantity cm³/: 70.00...130.00
 mind 1000S.: 70.00
 KSB/AFB
 Valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Inspection-pump test specifications
 Test specifications in parentheses
 Timing-device characteristic:
 2nd speed 1/min: 1250
 Charge press hPa: 1200
 TD travel mm: 2.20...3.00
 mm: (1.90...3.30)
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1100
 Charge press hPa: 1200
 TD travel mm: 1.30...1.70
 mm: (0.80...2.20)
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 1000
 Charge press hPa: 1200
 TD travel mm: 0.50...1.30
 mm: (0.20...1.60)
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 8th speed 1/min: 450
 TD travel mm: 3.00...4.00 *
 mm: -
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Charge press. hPa: 1200
 Supply-pump
 pressure bar: 4.10...4.70

+ KSB/AFB
 + valve Volt: 24
 + Shutoff
 + electromagnet Volt: 24
 + 2nd speed 1/min: 1100
 + Charge press. hPa: 1200
 + Supply-pump
 + pressure bar: 6.80...7.40
 + KSB/AFB
 + valve Volt: 24
 + Shutoff
 + electromagnet Volt: 24
 + 3rd speed 1/min: 1250
 + Charge press. hPa: 1200
 + Supply-pump
 + pressure bar: 7.50...8.10
 + KSB/AFB
 + valve Volt: 24
 + Shutoff
 + electromagnet Volt: 24
 + Overflow quantity at overflow valve:
 + 1st speed 1/min: 500
 + Charge press. hPa: -
 + KSB/AFB
 + valve Volt: 24
 + Shutoff
 + electromagnet Volt: 24
 + Overflow quantity cm³/10s: 41.70...83.40
 + 2nd speed 1/min: 1250
 + Charge press. hPa: 1200
 + KSB/AFB
 + valve Volt: 24
 + Shutoff
 + electromagnet Volt: 24
 + Overflow quantity cm³/10s: 55.60...139.00
 + Delivery-quant. and breakaway char.:
 + 1nd speed 1/min: 700
 + Charge-air pressure-setting point hPa: 700
 + LDA-stroke mm: 6.8
 + KSB/AFB
 + valve Volt: 24
 + Shutoff
 + electromagnet Volt: 24
 + Del. quantity cm³/: 68.00...69.00
 + 1000S.: (64.50...72.50)
 + 2nd speed 1/min: 1550
 + Charge press. hPa: 1200
 + KSB/AFB
 + valve Volt: 24
 + Shutoff
 + electromagnet Volt: 24

Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)	+	KSB/AFB valve Volt: 24
3rd speed 1/min: 1400		Electr. shutoff:
Charge press. hPa: 1200		1st speed 1/min: 350
KSB/AFB		Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)
valve Volt: 24		Shutoff electromagnet volt: -
Shutoff		Idle delivery:
electromagnet Volt: 24		1st speed 1/min: 350 KSB/AFB
Del. quantity cm ³ /: 15.00...55.00 1000s.: (15.00...55.00)		valve Volt: 24
5th speed 1/min: 1340		Shutoff
Charge press. hPa: 1200		electromagnet Volt: 24
KSB/AFB		Del. quantity cm ³ /: 52.50...58.50 1000s.: (49.50...61.50)
valve Volt: 24		9th speed 1/min: 1250
Shutoff		Charge press. hPa: 1200
electromagnet Volt: 24		KSB/AFB
Del. quantity cm ³ /: 52.50...58.50 1000s.: (49.50...61.50)		valve Volt: 24
9th speed 1/min: 1250		Shutoff
Charge press. hPa: 1200		electromagnet Volt: 24
KSB/AFB		Dispersion cm ³ /: 5.5 1000s.: (7.0)
valve Volt: 24		2nd speed 1/min: 450
Shutoff		KSB/AFB
electromagnet Volt: 24		valve Volt: 24
Del. quantity cm ³ /: 70.50...73.50 1000s.: (69.00...75.00)		Shutoff
10th speed 1/min: 750		electromagnet Volt: 24
Charge press. hPa: 1200		Del. quantity cm ³ /: 0.00...4.00 1000s.: (0.00...4.00)
KSB/AFB		Automatic starting fuel delivery:
valve Volt: 24		1st speed 1/min: 130
Shutoff		KSB/AFB
electromagnet Volt: 24		valve Volt: 24
Del. quantity cm ³ /: 69.00...74.00 1000s.: (67.00...76.00)		Shutoff
12th speed 1/min: 1100		electromagnet Volt: 24
Charge press. hPa: 1200		Del. quantity cm ³ /: 70.00...130.00 1000s.: (70.00...130.00)
KSB/AFB		2nd speed 1/min: 250
valve Volt: 24		KSB/AFB
Shutoff		valve Volt: 24
electromagnet Volt: 24		Shutoff
Del. quantity cm ³ /: 73.00...74.00 1000s.: (70.50...76.50)		electromagnet Volt: 24
18th speed 1/min: 500		Del. quantity cm ³ /: 30.00...50.00 1000s.: (30.00...50.00)
Charge press. hPa: -		4th speed 1/min: 100
KSB/AFB		KSB/AFB
valve Volt: 24		valve Volt: 24
Shutoff		Shutoff
electromagnet Volt: 24		electromagnet Volt: 24
Del. quantity cm ³ /: 51.00...52.00 1000s.: (47.50...55.50)		Del. quantity cm ³ /: 70.00...130.00 1000s.: (70.00...130.00)
Mech. shutoff:		Shutoff electromagnet:
Mech. Abstellung:		Cut-in min voltage : 20.0
1st speed 1/min: 1250		
Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)		
Shutoff		
electromagnet volt: 24		

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: -
SVS max.	mm: 2.3
LDA stroke	mm: 6.8

Remarks:

Operate control lever after each 97
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

* Unscrew KSB ball valve 2 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 17.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 513
 Injection pump
 Pump designation : PES6A95D410LS2542Z
 EP type number : 0 410 895 935
 Governor
 Governor design. : RQ250/1100AB1137-5L
 Governor no. : 0 420 200 087

Customer-spec. information

Customer : MAN
 Engine : D2566MFO/MFOR

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter *
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 100.5...102.5

1000 : (98.5...104.5)

Spread cm³ : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.50

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1190...1220

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.50...10.60
2nd speed rpm : 600
Rack travel in m: 10.90...11.00
3rd speed rpm : 750
Rack travel in m: 10.70...10.90
4th speed rpm : 845
Rack travel in m: 10.50...10.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ 1000 s: 87.5...90.5
Speed rpm : 500
Del.quantity cm³/ 1000 s: 0.0...93.5

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 125.0...135.0
Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,7 b 1
 Edition : 15.06.93
 Replaces : 01 91
 Test oil : ISO-4113
 Combination no. : 0 400 846 590
 Injection pump
 Pump designation : PES6A95D320RS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RQV350...1200AB1252
 -1R
 Governer no. : 0 420 213 124
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DT 466
 1st version kW : 138.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038
 Inlet press., bar : 2.80
 Test nozzle holder assembly : 1 688 901 110
 Opening pressure, bar : 250...253
 Orifice plate diameter mm : 0,5
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.00...13.10

Del.quantity cm³/

100 s: (9.2...9.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/

100 s: (1.5...2.3)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1400
travel mm		: 9.30...9.70
2nd speed	rpm	: 1250
travel mm		: 7.90...8.10
3rd speed	rpm	: 550
travel mm		: 3.10...3.70
4th speed	rpm	: 350
travel mm		: 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1200
Aneroid pressure h:		: 900
Del.quantity		: 94.5...96.5
1000		: (92.5...98.5)
Spread	cm ³	: 3.50
1000		: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 12.00
Speed rpm : 1285...1315
2nd rack travel in: 4.00
Speed rpm : 1425...1435
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.40...8.60
2nd pressure hPa : 175
Rack travel in m: 9.60...9.70
3rd pressure hPa : 430
Rack travel in m: 11.70...12.10

START CUT-OUT

Speed 1/min : 285 (295)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 50.0...54.0
1000 s: (48.0...56.0)

BREAKAWAY

L02

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1285...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ 1000 s: 17.0...21.0
1000 s: (15.0...23.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : NAVISTAR #1817004C91

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 26.04.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 864 091

Injection pump
 Pump designation : PES4A85D410/3RS2799-
 1
 EP type number : 0 410 884 942
 Governor
 Governor design. : RSV325...900A7C2239
 -5
 Governor no. : 0 420 232 564

Customer-spec. information
 Customer : KHD

Engine : BF4L913

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.45...2.55
 : (2.40...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 720

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 8.0...8.1

100 s: (7.8...8.3)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.4...7.6

Del.quantity cm³/ : 1.0...1.6

100 s: (0.8...1.8)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 720

Del.quantity : 80.5...81.5

1000 : (78.5...83.5)

Spread cm³ : 0.30

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 85...93

Testing:

1st rack travel in: 11.10

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 764...779

4th rack travel in: 920

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 61...69

Setting point w/out bumper spring

Speed rpm : 325
Rack travel in mm : 6.0
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 310...370

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ 1000 s: 70.0...72.0
Spread cm³: 3.00
1000 s: (67.5...74.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 120.0...130.0
Rack travel in mm : 17.80...18.20

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8/3 l13
 Edition : 15.06.93
 Replaces : 07.91
 Test oil : ISO-4113

Combination no. : 0 400 866 149

Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV375...1000ADC2190
 -44R
 Governor no. : 0 420 233 250

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA

1st version kW : 166.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L05

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.90...13.00

Del.quantity cm³/

100 s: (13.1...13.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/

100 s: (1.4...2.3)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity cm³/

1000 : (133.5...135.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 11.90

Speed rpm : 1050...1060

2nd rack travel in: 4.00

Speed rpm : 1115...1145
3rd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.90...13.00
2nd speed rpm : 750
Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 146.0...150.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915570

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces :
 Test oil : ISO-4113

Combination no. : 0 400 866 180

Injection pump
 Pump designation : PES6A1000320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100A002190
 -58R
 Governer no. : 0 420 233 297

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 117.1
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

L07

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.80...10.90

Del.quantity cm³/

100 s: (9.6...10.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.9...6.1
 Del.quantity cm³/

100 s: (1.5...2.4)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
 Del.quantity : 98.0...100.0
 1000 : (96.0...102.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 56...64

Testing:
1st rack travel in: 9.80
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1270...1280
3rd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 36...44
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.90...6.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.80...10.90
2nd speed rpm : 750
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 102.0...106.0
1000 s: (100.0...108.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.90...6.10

Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3922144

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 181
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2190
 Governor no. : 0 420 233 298

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830
 1st version kW : 140.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

L09

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 11.2...11.4
 100 s: (11.0...11.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 112.0...114.0
 1000 : (110.0...116.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever position degrees: 49...57

Testing:
1st rack travel in: 10.80
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1245
3rd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.80...11.90
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 123.5...127.5
1000 s: (121.5...129.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3922145
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 182

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2190
 -60R
 Governor no. : 0 420 233 299

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 12.6...12.8
 100 s: (12.4...13.0)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 126.5...128.5
 1000 : (124.5...130.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever position degrees: 46...54

Testing:	Del.quantity cm ³ / : 16.5...20.5 1000 s: (14.0...23.0)
1st rack travel in: 11.90 Speed rpm : 1150...1160	Spread cm ³ : 6.00 1000 s: (8.00)
2nd rack travel in: 4.00 Speed rpm : 1250...1260	
3rd rack travel in: 4.00 Speed rpm : 1250...1280	
4th rack travel in: 13.00 Speed rpm : 0.30...1.40	
LOW IDLE 1 Control lever position degrees: 22...30	Remarks: : C.D.C. # 3922146 Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.
Setting point w/out bumper spring Speed rpm : 450	Start-of-delivery mark 11° cam angle after start of delivery cyl. 1
Rack travel in mm : 5.3	
Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 450 Rack travel in mm : 5.70...5.90	Limit shutoff stop screw to 1.0 mm.
TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.90...13.00 2nd speed rpm : 750 Rack travel in m: 13.70...13.90	APPLICATION Generator
FUEL DELIVERY CHARACTERISTICS	
1st version Speed rpm : 750 Del.quantity cm ³ / : 142.5...146.5 1000 s: (140.5...148.5)	
BREAKAWAY	
1st version 1mm rack travel less than full load rack tr: 11.90 Speed rpm : 1150...1160	
STARTING FUEL DELIVERY	
Speed rpm : 100 Del.quantity cm ³ / : 130.0...150.0 1000 s: (125.0...155.0) Rack travel in mm : 20.00...21.00	
LOW IDLE	
Speed rpm : 450 Rack travel in mm : 5.70...5.90	

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 123

Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV400...1100ADC2190
 Governor no. : 0 420 233 300

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT 8.3
 1st version kW : 111.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm	:	2.80...2.90
	:	(2.75...2.95)
Rack travel in mm	:	9.00...12.00
Firing order	:	1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity rpm : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1230...1240
3rd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 35...43
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 4.90...5.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 750
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ 1000 s: 96.5...100.5
1000 s: (94.5...102.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ 1000 s: 12.0...16.0
1000 s: (9.5...18.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921100

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 184
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV425...900A4C2213
 Governer no. : 0 420 233 325
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CT 8.3
 1st version kW : 154.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 830
 Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 13.8...14.0
 100 s: (13.6...14.2)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.1...5.3
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.1)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 830
 Del.quantity : 138.5...140.5
 1000 : (136.5...142.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever position degrees: 48...56

Testing:

1st rack travel in: 12.40
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 970...980
3rd rack travel in: 4.00
Speed rpm : 960...990
4th rack travel in: 1030
Speed rpm : 0.30...1.40

Generator

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.10...5.30

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.10...5.30
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921160

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 185
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV500...1250ADC2190
 Governor no. : 0 420 233 301
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA-I
 1st version kW : 164.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant. per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 113.5...115.5

1000 : (111.5...117.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.90
Speed rpm : 1305...1315
2nd rack travel in: 4.00
Speed rpm : 1355...1365
3rd rack travel in: 4.00
Speed rpm : 1345...1375
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921096

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery blocking 12° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 186
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -63R
 Governer no. : 0 420 233 302
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CT 8.3
 1st version kW : 156.6
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 5.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 122.5...124.5

1000 : (120.5...126.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.30
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1255...1265
3rd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 28...36
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921099

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 187
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV500...1050AOC2190
 Governor no. : 0 420 233 303
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6-CT-I 8.3 ltr
 1st version kW : 123.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.70...10.80

Del.quantity cm³/

100 s: (9.7...10.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.70
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1190...1200
3rd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 5.30...5.50

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 120.5...124.5
1000 s: (118.5...126.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3911116

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 188

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV425...750A4C2213
 -5R
 Governer no. : 0 420 233 326

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT- 8.3 L

1st version kW : 135.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm³/

100 s: (14.0...14.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/

100 s: (1.5...2.4)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 142.5...144.5

1000 : (140.5...146.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 13.00
Speed rpm : 795...805
2nd rack travel in: 4.00
Speed rpm : 835...845
3rd rack travel in: 4.00
Speed rpm : 830...860
4th rack travel in: 9.00
Speed rpm : 0.30...1.40

Generator

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 6.00...6.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 795...805

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921152

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Limit shutoff stop screw to 1.0 mm.

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 189

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 Governor no. : 0 420 233 304

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3ltr

1st version kW : 174.5
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/

100 s: (12.6...13.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity rpm : 128.0...130.0

1000 : (126.0...132.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
3rd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921145

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 190
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250ADC2216
 Governor no. : 0 420 233 327
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CT 8.3 ltr
 1st version kW : 160.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 118.5...120.5

1000 : (116.5...122.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1365...1375
3rd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 6.00
1000 s: (8.00)
Remarks: : C.D.C. # 3921144

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces :
 Test oil : ISO-4113
 Combination no. : 0 400 866 191
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -66R
 Governer no. : 0 420 233 305
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3 ltr.
 1st version kW : 157.0
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.5

Del.quantity cm³/ : 1.5...1.9

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 112.5...114.5

1000 : (110.5...116.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

M01

1st rack travel in: 11.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 6.00...6.50

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ 1000 s: 133.5...137.5
1000 s: (131.5...139.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.50
Del.quantity cm³/ 1000 s: 15.5...19.5
1000 s: (13.0...22.0)

M02

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921159

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 192
 Injection pump
 Pump designation : PES6A1000320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -67R
 Governor no. : 0 420 233 306
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 C 8.3 ltr.
 1st version kW : 112.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.30...11.40

Del.quantity cm³/

100 s: (10.3...10.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 105.5...107.5

1000 : (103.5...109.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921137

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 193
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 Governor no. : 0 420 233 307
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CT 8.3
 1st version kW : 138.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 10.7...10.9

100 s: (10.5...11.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 750.0

Rack travel in mm : 12.6...12.8

Del.quantity cm³/ : 12.5...12.9

100 s: (12.3...13.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 107.5...109.5

1000 : (105.5...111.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1225...1235
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

LOW IDLE 1
Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.3

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921094

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 194
 Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV415...1175AOC219D
 -69R
 Governer no. : 0 420 233 308
 Customer-spec. information
 Customer : C.D.C
 Engine : 6 CT
 1st version kW : 129.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 415.0

Rack travel in mm : 5.1...5.3

Del.quantity cm³/ : 1.4...1.8

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del.quantity : 98.5...100.5

1000 : (96.5...102.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 9.40
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1305...1315
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 415
Rack travel in mm : 4.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 415
Rack travel in mm : 5.10...5.30

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 10.40...10.50
2nd speed rpm : 800
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ 101.0...105.0
1000 s: (99.0...107.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 415
Rack travel in mm : 5.10...5.30
Del.quantity cm³/ 14.5...18.5
1000 s: (12.0...21.0)

M08

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921135

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 197

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2238
 Governor no. : 0 420 233 330

Customer-spec. information
 Customer : C.B.C.

Engine : 6CT830

1st version kW : 151.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

M09

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting X : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 119.0...121.0
 1000 : (117.0...123.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:
 1st rack travel in: 11.10
 Speed rpm : 1140...1150
 2nd rack travel in: 4.00
 Speed rpm : 1195...1205
 3rd rack travel in: 4.00
 Speed rpm : 1185...1215
 4th rack travel in: 1300
 Speed rpm : 0.30...1.40

LOW IDLE 1
 Control lever
 position degrees: 22...30
 Setting point w/out bumper spring
 Speed rpm : 450
 Rack travel in mm : 5.0

Testing:
 Speed rpm : 100
 Minimum rack trave: 19.00
 Speed rpm : 450
 Rack travel in mm : 5.40...5.60

TORQUE CONTROL
 Torque control curve - 1st version
 1st speed rpm : 1100
 Rack travel in m: 12.10...12.20
 2nd speed rpm : 750
 Rack travel in m: 13.20...13.40

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 500
 Pressure hPa : 900
 Rack travel mm : 13.20...13.40

Measurement
 Speed 1/min : 500

1st pressure hPa : -
 Rack travel in m: 10.40...10.60
 2nd pressure hPa : 385
 Rack travel in m: 11.40...11.50
 3rd pressure hPa : 560
 Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 900
 Speed rpm : 750
 Del.quantity cm³/ 1000 s: 136.5...140.5
 Aneroid pressure h: -

Speed rpm : 500
 Del.quantity cm³/ 1000 s: 80.0...82.0
 1000 s: (78.0...84.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 11.10
 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ 1000 s: 135.0...155.0
 1000 s: (130.0...160.0)
 Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
 Rack travel in mm : 5.40...5.60
 Del.quantity cm³/ 1000 s: 15.0...19.0
 1000 s: (12.5...21.5)
 Spread cm³ : 6.00
 1000 s: (8.00)

Remarks: : C.D.C. # 3921121

Adjustment without torque-control
 spring retainer with 1 mm less
 control-rod travel. Increase in
 full-load delivery with torque-control
 spring retainer.

Start-of-delivery mark 11° cam angle
 after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 198
 Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : PSV400...950A002238
 Governer no. : 0 420 233 331
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6CT830
 1st version kW : 145.2
 Rated speed : 1900
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 950
 Rack travel in mm : 12.10...12.20
 Del.quantity cm³/ : 12.0...12.2
 100 s: (11.8...12.4)
 Spread cm³ : 0.4
 100 s: (0.6)
 2nd speed rpm : 400.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 1.3...1.7
 100 s: (1.0...1.9)
 Spread cm³ : 0.6
 100 s: (0.8)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70
 Governor spring pre-tension
 Click setting x : 2.50
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 950
 Aneroid pressure h: 900
 Del.quantity : 120.5...122.5
 1000 : (118.5...124.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 37...45

Testing:

1st rack travel in: 11.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1075
3rd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 220
Rack travel in m: 11.10...11.20
3rd pressure hPa : 305
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 89.5...93.5
1000 s: (87.5...95.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921127

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 199

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100ADC2241
 -1R
 Governor no. : 0 420 233 332

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

M13

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ 100 s: 10.3...10.5
 cm³ : (10.1...10.7)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ 100 s: 1.6...2.0
 cm³ : (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
 Aneroid pressure h: 900
 Del.quantity 1000 : 103.5...105.5
 cm³ : (101.5...107.5)
 Spread 1000 : 4.00
 cm³ : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 49...57

Testing:
1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1220...1230
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.00...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 305
Rack travel in m: 11.10...11.20
3rd pressure hPa : 425
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ 1000 s: 112.5...116.5
1000 s: (110.5...118.5)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ 1000 s: 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ 1000 s: 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921120

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 200
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : PSV400...1100AOC2190
 Governor no. : 0 420 233 311
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 C 8.3
 1st version kW : 126.8
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.70...10.80

Del.quantity cm³/

100 s: (9.4...10.0)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 9.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 119.5...123.5
1000 s: (117.5...125.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 6.00
1000 s: (8.00)
Remarks: : C.D.C. # 3921133

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 201
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV470...1100AOC2190
 -73R
 Governer no. : 0 420 233 312
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6CT830
 1st version kW : 150.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M17

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 11.5...11.7

100 s: (11.3...11.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 470.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 1.6...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity 1000 : 115.0...117.0

: (113.0...119.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1235...1245
3rd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1325
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 470
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trav: 19.00
Speed rpm : 470
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 128.0...132.0
1000 s: (126.0...134.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 470
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921129

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 202
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1000ADC2190
 Governor no. : 0 420 233 313
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CT 8.3
 1st version kW : 151.4
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 12.3...12.5
 : 100 s: (12.1...12.7)

Spread cm³ : 0.4
 : 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.4...1.8
 : 100 s: (1.1...2.0)

Spread cm³ : 0.6
 : 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 123.0...125.0
 : 1000 : (121.0...127.0)

Spread cm³ : 4.00
 : 1000 : (6.50)

RATED SPEED

1st version
 Control lever position degrees: 36...44

Testing:

1st rack travel in: 11.10
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1110...1120
3rd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1175
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921142

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 203
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -75R
 Governer no. : 0 420 233 314
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3ltr
 1st version kW : 174.5
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.7...12.9

100 s: (12.5...13.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 127.0...129.0

1000 : (125.0...131.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...175.0
1000 s: (150.0...180.0)
Rack travel in mm : 16.20...16.40

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921126

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 204
 Injection pump
 Pump designation : PES6A100D320/3RS2591
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -76R
 Governer no. : 0 420 233 315
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CT 8.3ltr
 1st version kW : 173.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.70...10.30

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.70
Speed rpm : 1170...1180
2nd rack travel in: 4.00
Speed rpm : 1235...1245
3rd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921163

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 205
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOC2190
 Governor no. : 0 420 233 316
 Customer-spec. information
 Customer : C.D.C
 Engine : 6 CT 8.3
 1st version kW : 154.4
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.40...12.50

Del.quantity cm³/

100 s: (12.3...12.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 125.5...127.5

1000 : (123.5...129.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1140...1150
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1275
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921164

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 206
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250AOC2190
 -78R
 Governer no. : 0 420 233 317
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3
 1st version kW : 131.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm	: 2.80...2.90
	: (2.75...2.95)
Rack travel in mm	: 9.00...12.00
Firing order	: 1- 5- 3- 6- 2- 4
Phasing	: 0-60-120-180-240-300
Tolerance + - "	: 0.50 (0.75)
Time to cyl. no.	: 1
BASIC SETTING	
1st speed rpm	: 1250
Rack travel in mm	: 10.80...10.90
Del.quantity cm ³ /	: 9.9...10.1
100 s:	(9.7...10.3)
Spread cm ³	: 0.4
100 s:	(0.6)
2nd speed rpm	: 400.0
Rack travel in mm	: 5.2...5.4
Del.quantity cm ³ /	: 1.2...1.6
100 s:	(1.0...1.9)
Spread cm ³	: 0.6
100 s:	(0.8)
GUIDE SLEEVE POSITION	
Control-lever position	
Degree:	-3
Speed rpm	: 800
Rack travel in mm	: 0.30...0.70
Governor spring pre-tension	
Click setting x	: 4.25
FULL LOAD DELIV. AT FULL LOAD STOP	
1st version	
Speed rpm	: 1250
Del.quantity	: 99.5...101.5
1000	: (97.5...103.5)
Spread cm ³	: 4.00
1000	: (6.50)
RATED SPEED	
1st version	
Control lever	
position degrees:	51...59
Testing:	

1st rack travel in: 9.80
Speed rpm : 1325...1335
2nd rack travel in: 4.00
Speed rpm : 1400...1410
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1325...1335

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 12.5...16.5
1000 s: (10.0...19.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921107

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 207
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -79R
 Governer no. : 0 420 233 318
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 C 8.3
 1st version kW : 129.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

N01

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/

100 s: (9.3...9.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity rpm : 95.5...97.5

1000 : (93.5...99.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921143

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

NO2

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces :
 Test oil : ISO-4113

Combination no. : 0 400 866 208

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100A0C2190
 -80R
 Governer no. : 0 420 233 319

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

N03

Prestroke mm : 2.80...2.90
 (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 124.5...126.5

1000 : (122.5...128.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever:
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921140

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 209
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOF2190
 -81R
 Governer no. : 0 420 233 320
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 C 8.3
 1st version kW : 89.0
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

NOS

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.60...9.70

Del.quantity cm³/

100 s: (7.7...8.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity cm³/

1000 : (77.5...83.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 8.60
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1135...1145
3rd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 86.5...90.5
1000 s: (84.5...92.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921089

Limit shutoff stop screw to 1.0 mm.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 210
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050A7C2216
 Governor no. : 0 420 233 328
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3
 1st version kW : 141.7
 Rated speed : 2100
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

N07

Prestroke mm	: 2.80...2.90
	(2.75...2.95)
Rack travel in mm	: 9.00...12.00
Firing order	: 1- 5- 3- 6- 2- 4
Phasing	: 0-60-120-180-240-300
Tolerance + - *	: 0.50 (0.75)
Time to cyl. no.	: 1
BASIC SETTING	
1st speed rpm	: 1050
Rack travel in mm	: 11.10...11.20
Del.quantity cm ³ /	: 10.0...10.2
	100 s: (9.8...10.4)
Spread cm ³	: 0.4
	100 s: (0.6)
2nd speed rpm	: 400.0
Rack travel in mm	: 5.9...6.1
Del.quantity cm ³ /	: 1.8...2.2
	100 s: (1.5...2.4)
Spread cm ³	: 0.6
	100 s: (0.8)
GUIDE SLEEVE POSITION	
Control-lever position	
Degree:	-3
Speed rpm	: 800
Rack travel in mm	: 0.30...0.70
Governor spring pre-tension	
Click setting x	: ?
FULL LOAD DELIV. AT FULL LOAD STOP	
1st version	
Speed rpm	: 1050
Del.quantity	: 100.5...102.5
	1000 : (98.5...104.5)
Spread cm ³	: 4.00
	1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 43...51

Testing:

1st rack travel in: 10.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1180
3rd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 25...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trav: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)

Spread cm³ : 6.00
1000 s: (8.00)
Remarks: : C.D.C. # 3924685

Limit shutoff stop screw to 1.0 mm.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 211

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOC2216
 -7R
 Governer no. : 0 420 233 329

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 141.7
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

N09

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.5...11.7

100 s: (11.3...11.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 115.0...117.0

1000 : (113.0...119.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 12.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 134.0...138.0
1000 s: (132.0...140.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921104

Limit shutoff stop screw to 1.0 mm.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 212

Injection pump : PES6A100D320/3RS2691
 Pump designation : -4
 EP type number : 9 410 230 030
 Governor : RSV450...1100A0C2190
 Governor design. : -82R
 Governor no. : 0 420 233 321

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 117.1
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

N11

Test pressure, bar: 27...29

Prestroke mm	: 2.80...2.90
	: (2.75...2.95)
Rack travel in mm	: 9.00...12.00
Firing order	: 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm	: 450.0
Rack travel in mm	: 5.7...5.9
Del.quantity cm ³ /	: 1.4...1.8
100 s:	(1.2...2.1)
Spread cm ³	: 0.6
100 s:	(0.8)

GUIDE SLEEVE POSITION

Control-lever position	
Degree:	-3
Speed rpm	: 800
Rack travel in mm	: 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	
Speed rpm	: 1100
Del.quantity 1000	: 89.5...91.5
Spread cm ³	: (87.5...93.5)
1000	: 4.00
	: (6.50)

RATED SPEED

1st version	
Control lever	
position degrees:	47...55

Testing:
1st rack travel in: 9.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ s: 88.5...92.5
1000 s: (86.5...94.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ s: 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921092
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces :
 Test oil : ISO-4113

Combination no. : 0 400 866 213

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030

Governor
 Governor design. : RSV450...1100AOC2190
 -83R

Governor no. : 0 420 233 322

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kW : 150.6

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
 Tolerance + - : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 12.0...12.2
 100 s: (11.8...12.4)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.2...2.1)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 120.0...122.0
 1000 : (118.0...124.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:

1st rack travel in: 11.10
Speed rpm : 1155...1165
2nd rack travel in: 4.00
Speed rpm : 1245...1255
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 134.0...138.0
1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1155...1165

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921093
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 214

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030

Governor
 Governor design. : RSV450...1100AOC2190
 -84R

Governor no. : 0 420 233 323

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 10.3...10.5
 100 s: (10.1...10.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.6...2.0

100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
 Del.quantity : 103.5...105.5

1000 : (101.5...107.5)
 Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 49...57

Testing:

1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1220...1230
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 111.5...115.5
1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 138.0...158.0
1000 s: (133.0...163.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921095
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 18.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 498
 Injection pump
 Pump designation : PE6P110A720RS441
 EP type number : 0 411 816 148
 Governor
 Governor design. : RQ225/1200PA617-1
 Governor no. : 0 421 801 254
 Customer-spec. information
 Customer : DAF
 Engine : DHS825
 1st version kW : 184.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 089
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 5- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 13.7...13.9

100 s: (13.4...14.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 225.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.0...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position:

Degree: -1

Speed rpm : 650

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 137.0...139.0

1000 : (134.5...141.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 15.8

Testing:

1st rack travel in: 11.20

Speed rpm : 1235...1251

2nd rack travel in: 4.00

Speed rpm : 1310...1340

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 225
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.20...12.30
2nd speed rpm : 1190
Rack travel in m: 12.10...12.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 360
Rack travel in m: 11.70...11.80
3rd pressure hPa : 290
Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 92.0...94.0
1000 s: (89.5...96.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1235...1251

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 245.0...285.0
1000 s: (241.0...289.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 10.0...15.0
1000 s: (7.5...17.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

:

APPLICATION

Omnibus

BOSCH INI. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 r
 Edition : 15.06.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 887

Injection pump
 Pump designation : PE6P120A720RS718E
 EP type number : 0 412 626 832
 Governor
 Governor design. : RQV200...950PA725-7
 Governor no. : 0 421 813 803

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 23

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.50

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del.quantity cm³/

100 s: (24.8...25.6)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/

100 s: (1.0...2.2)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1045

travel mm : 8.40...8.60

5th speed rpm : 1125

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del.quantity : 251.0...253.0

1000 : (248.0...256.0)

Spread cm³ : 8.00
 1000 : (12.00)

Del.quantity cm³/ : 152.0...154.0
 1000 s: (149.0...157.0)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 150
Minimum rack trave: 6.00
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 228.0...236.0
 1000 s: (226.0...238.0)
Aneroid pressure h: -
Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...185.0
 1000 s: (141.0...189.0)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 968

Injection pump
 Pump designation : PE6P120A320RS7248
 EP type number : 0 412 626 861
 Governor
 Governor design. : RQV275...1150PA986
 Governer no. : 0 421 813 920

Customer-spec. information
 Customer : DAF

Engine : RS 222 L

1st version kw : 222.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 120...140

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	: (5.15...5.35)
Rack travel in mm	: 14.00...15.00
Firing order	: 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - " : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 11.7...12.7
 Difference * CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.20...12.30

Del.quantity cm³/

100 s: (18.1...18.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 275
travel mm		: 1.20...1.60
2nd speed	rpm	: 315
travel mm		: 1.80...2.20
3rd speed	rpm	: 1205
travel mm		: 8.10...8.50
4th speed	rpm	: 1340
travel mm		: 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 9.90...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h: 1000
Del.quantity : 184.0...186.0
1000 : (181.0...189.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 115...123

Testing:

1st rack travel in: 11.20
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1295...1325
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 79...87

Testing:

Speed rpm : 175
Minimum rack trave: 6.70
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 315...365

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 420
Rack travel in m: 11.60...11.70
3rd pressure hPa : 240
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ 1000 s: 120.0...122.0
1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1190...1200

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 969
 Injection pump
 Pump designation : PE6P120A320RS7248Z
 EP type number : 0 412 626 862
 Governor
 Governor design. : RQV275...1150PA986
 Governer no. : 0 421 813 920

Customer-spec. information

Customer : DAF
 Engine : RS 200 L

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 120...140
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 10.8...11.8
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed	rpm	: 1000
<hr/>		
Rack travel in mm		: 11.30...11.40
<hr/>		
Del.quantity cm ³ /		: 16.4...16.6
<hr/>		
100 s:		(16.1...16.9)
<hr/>		
Spread	cm ³	: 0.5
<hr/>		
100 s:		(0.9)
<hr/>		
2nd speed	rpm	: 275.0
Rack travel in mm		: 5.2...5.4
Del.quantity cm ³ /		: 1.3...1.9
100 s:		(1.0...2.2)
Spread	cm ³	: 0.8
100 s:		(1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 275
 travel mm : 1.20...1.60
 2nd speed rpm : 315
 travel mm : 1.80...2.20
 3rd speed rpm : 1205
 travel mm : 8.10...8.50
 4th speed rpm : 1340
 travel mm : 9.70...9.90

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1335
 Rack travel in mm : 9.00...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h: 1000
Del.quantity : 164.0...166.0
1000 : (161.0...169.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 10.30
Speed rpm : 1180...1190
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 79...87

Testing:

Speed rpm : 175
Minimum rack trav: 6.70
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 315...365

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 340
Rack travel in m: 10.70...10.80
3rd pressure hPa : 200
Rack travel in m: 9.60...9.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ 1000 s: 115.0...117.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1180...1190

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 10.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 970
 Injection pump
 Pump designation : PE6P120A320RS7248Y
 EP type number : 0 412 626 863
 Governor
 Governor design. : RQV275...1150PA986
 Governer no. : 0 421 813 920

Customer-spec. information

Customer : DAF
 Engine : RS 180 L

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 120...140
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8

Test lines : 1 680 750 089
 Outside diameter x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 (5.15...5.35)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 10.2...11.2
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 14.5...14.7

100 s: (14.2...15.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 275
travel mm		: 1.20...1.60
2nd speed	rpm	: 315
travel mm		: 1.80...2.20
3rd speed	rpm	: 1205
travel mm		: 8.10...8.50
4th speed	rpm	: 1340
travel mm		: 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 8.40...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h: 1000
Del.quantity : 145.5...147.5
1000 : (142.5...150.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 9.70
Speed rpm : 1180...1190
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 79...87

Testing:
Speed rpm : 175
Minimum rack trave: 6.70
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION
Speed rpm : 315...365

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 10.70...10.80

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 260
Rack travel in m: 10.30...10.40
3rd pressure hPa : 190
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 112.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1180...1190

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:
:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 971
 Injection pump
 Pump designation : PE6P120A320RS7218Z
 EP type number : 0 412 626 847
 Governor
 Governor design. : RQV275...1000PA939-2
 Governer no. : 0 421 813 986
 Customer-spec. information
 Customer : DAF
 Engine : WS 242 L

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 95...115
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm	: 5.30...5.40
	: (5.25...5.45)
Rack travel in mm	: 14.00...15.00
Firing order	: 1- 5- 3- 6- 2- 4
Phasing	: 0-60-120-180-240-300
Tolerance + - °	: 0.50 (0.75)
Time to cyl. no.	: 1
BEGINNING OF DELIVERY DIFFERENCE	
betw. rack trav. m:	4.90...5.10
& maximum rack tra:	13.5...14.5
Difference ° CS	: 2.25...3.75
BASIC SETTING	
1st speed rpm	: 850
Rack travel in mm	: 13.80...13.90
Del.quantity cm ³ /	: 20.5...20.7
100 s:	(20.2...21.0)
Spread cm ³	: 0.5
100 s:	(0.9)
2nd speed rpm	: 275.0
Rack travel in mm	: 6.1...6.3
Del.quantity cm ³ /	: 1.4...2.0
100 s:	(1.1...2.3)
Spread cm ³	: 0.8
100 s:	(1.2)
(B) Setting of injection pump with governor	
GUIDE SLEEVE TRAVEL	
1st speed rpm	: 1045
travel mm	: 7.70...8.20
2nd speed rpm	: 275
travel mm	: 1.10...1.60
3rd speed rpm	: 380
travel mm	: 2.40...2.90
4th speed rpm	: 675
travel mm	: 4.20...4.70
5th speed rpm	: 1310
travel mm	: 11.00...12.00
GUIDE SLEEVE POSITION	
Control-lever position	
Degree:	-1
Speed rpm	: 1130
Rack travel in mm	: 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850
Aneroid pressure h: 1000
Del.quantity : 205.0...207.0
1000 : (202.0...210.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 115...123

Testing:

1st rack travel in: 12.80
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 78...86

Testing:

Speed rpm : 175
Minimum rack trave: 7.50
Speed rpm : 275
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 300...350

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.70...11.90
2nd pressure hPa : 420
Rack travel in m: 13.30...13.40
3rd pressure hPa : 260
Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ 1000 s: 147.0...149.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery